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RETHINKING DISASTERS:
FINDING EFFICIENCIES THROUGH COLLABORATION

by

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Disasters are highly inopportune and represent a convergence of complexities, including multiple layers of government, private and non-profit organizations, and diverse populations. The complexity and unpredictability of disasters has been countered with structured management strategies. While an ordered environment has merit, perhaps the management of disasters is over-engineered that results in missed opportunities to capitalize on collaborative, decentralized solutions. This thesis evaluates the processes and procedures for responding to disasters by examining the current tiered response model (local, state, federal) and exploring whether a nonlinear, adaptive approach could improve interagency collaboration and result in better resource utilization.

This research creates a framework for dialogue about the deeper appreciation of the complexities and hardships of disaster response. The management of disasters has been routinely criticized. Using a formative program evaluation method, primary and secondary data analysis focuses on understanding the roles and responsibilities of stakeholders, the effectiveness of resource deployment, and intergovernmental collaboration during disaster response.

This thesis concludes with several recommendations ranked based on multiple factors including political acceptability, economic plausibility, public perception, effectiveness, and appropriate utilization of resources.

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RETHINKING DISASTERS:
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ABSTRACT

Disasters are highly inopportune and represent a convergence of complexities, including multiple layers of government, private and non-profit organizations, and diverse populations. The complexity and unpredictability of disasters has been countered with structured management strategies. While an ordered environment has merit, perhaps the management of disasters is over-engineered that results in missed opportunities to capitalize on collaborative, decentralized solutions. This thesis evaluates the processes and procedures for responding to disasters by examining the current tiered response model (local, state, federal) and exploring whether a nonlinear, adaptive approach could improve interagency collaboration and result in better resource utilization.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACORN	Association of Community Organizations for Reform Now
CBO	Community-Based Organization
DHS	Department of Homeland Security
EMA	Emergency Management Agency
ESF	Emergency Support Function
FCO	Federal Coordinating Officer
FDRC	Federal Disaster Recovery Coordinator
FEMA	Federal Emergency Management Agency
FRP	Federal Response Plan
IAF	Industrial Areas Foundation
IMT	Incident Management Team
NDRF	National Disaster Recovery Framework
NRCC	National Response Coordination Center
NRF	National Response Framework
NRP	National Response Plan
OIG	Office of Inspector General
PICO	People Improving Communities through Organizing
THIRA	Threat Hazard Identification Risk Assessment
U.S.	United States
USACE	United States Army Corps of Engineers

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I. INTRODUCTION

A. PROBLEM STATEMENT

The complexity and unpredictability of disasters has been countered with structured management strategies. While an ordered environment has merit, perhaps the management of disasters is over-engineered resulting in missed opportunities to capitalize on collaborative, decentralized solutions. As Hurricane Sandy ripped through the east coast in October 2012, President Obama's message was "no red tape, cut through the bureaucracy."[1] After decades of responding to disasters and ample opportunity to refine, even perfect processes, it begs asking why red tape and bureaucracy continues to pervade disaster response and how the system can be improved.

Disasters, ranging from minor to catastrophic, have occurred consistently throughout history and the frequency of these events is increasing. A noticeable trend in the rise of natural disasters has occurred, particularly concerning hydrometerological events, which have approximately doubled in occurrence over the past 20 years.[2] Furthermore, the effects of disaster are far-reaching. In a 15-year period from 1991–2005, natural disasters have affected 3,470 million people, lead to 960,000 deaths, and contributed to $1,193 billion dollars in economic loses.[3] The increasing prevalence and impact of major disasters, paired with the economic implications, is justification for an adaptive and collaborative response system that efficiently utilizes resources and strategically manages response and recovery operations. The strategies utilized to manage disasters have incorporated themes of collaboration, such as welcoming the integration of nonprofit organizations and community members, but disparities exist in the consistency of application, utility, and effectiveness.

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[1] Kathleen Hennessey, "Obama Vows 'No Red Tape' Will Tour Storm Damage in New Jersey," *Los Angeles Times*, 1, October 30, 2012, http://www.latimes.com/news/politics/la-na-nn-obama-christie-sandy-20121030,0,7118214.story.

[2] Reid Basher, "Disaster Impacts: Implications and Policy Responses," *Social Research* 75, no. 3 (Fall 2008): 939.

[3] Ibid., 940.

The manner in which the United States (U.S.) responds to disasters is routinely criticized. Each major U.S. disaster brings another tale of Federal Emergency Management Agency (FEMA) corruption and failure, and yet another Congressional investigation into the problems in FEMA.[4] Dating back to 1989 and 1992, catastrophic disasters, such as Hurricane Hugo, the Loma Prieta earthquake, and Hurricanes Andrew and Iniki, generated intense criticism of the federal response effort.[5] In 2006, despite recognition of the catastrophic effects caused by Hurricane Katrina, FEMA again received widespread criticism for a slow and ineffective response.[6] Town meetings, conferences, and congressional subcommittees convened to hear testimony and stories about Hurricane Katrina, and the condemnations of the slow response of local, state, and national relief efforts.[7] The analyses and development of recommendations following these disasters focuses on common themes, such as collaboration, roles and responsibilities, command and control, and the appropriate utilization of resources. These issues collectively emerge as the Achilles heel of disaster response. Understanding the system as a whole, ways to leverage partnerships, and opportunities for optimizing scarce resources, are the foundation to improving disaster response effectiveness.

The traditional response model is tiered (local, state, federal) and each tier builds upon the preceding. While this tiered approach outlines a progression of added governmental support as the magnitude of the disaster increases, instances arise when local and federal agencies need to partner directly with one another, and still other occasions occur when a disaster quickly reaches catastrophic proportions that requires federal assistance be mobilized quite rapidly. Nonlinear techniques and adaptations to the

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[4] Russell S. Sobel and Peter T. Leeson, "Government's Response to Hurricane Katrina: A Public Choice Analysis," *Public Choice* 127 (2006): 55.

[5] U.S. Government Accountability Office, *Disaster Management, Improving the Nation's Response to Catastrophic Disasters*, (GAO/RCED-93-186), 1, (Washington, DC: GPO, 1993), http://archive.gao.gov/t2pbat5/149631.pdf.

[6] Department of Homeland Security, Office of Inspector General, "A Performance Review of FEMA's Disaster Management Activities in Response to Hurricane Katrina," 1, 4, March 2006, www.oig.dhs.gov/assets/mgmt/oig_06-32_mar06.pdf.

[7] Alan H. Stein and Gene B. Preuss, "Oral History, Folklore, and Katrina," in *There Is No Such Thing As a Natural Disaster*, ed. Chester Hartman and Gregory D. Squires (New York, NY: Routledge, 2006), 37.

disaster response model enhance collaboration and allow for flexible management strategies. Such adaptations may consist of local-federal relationships by using available resources absent of presidential declarations, or involving federal agencies early in an effort to reduce the catastrophic effects of disasters.

The national disaster response model has undergone continuous strategic and organizational change that range from a bureaucratic and command-oriented model to one that focuses on serving as a supportive element to local first responders.[8] Historical evidence demonstrates both best practices and challenges associated with these techniques. Research shows that these different approaches, a lead versus supporting role, have succeeded in different circumstances. This thesis explores what contributes to the successes of these opposite approaches and proposes a shift to a nonlinear model for disaster response better suited to adapt to the complexity and diversity of disasters of varying type and degree.

B. RESEARCH QUESTIONS

1. Primary Research Question

Can an adaptive, nonlinear response model, rather than the traditional tiered response model, improve the effectiveness of intergovernmental collaboration?

2. Secondary Research Questions

- Does consistent understanding of roles and responsibilities occur?
- What contributing factors lead to effective or ineffective disaster response?
- What aspects of the current tiered model should be either sustained or restructured?

C. METHODS

This thesis used formative program evaluation, consisting of primary and secondary data collection, to address the research questions. The research begins with

[8] William L. Waugh Jr. and Gregory Streib, "Collaboration and Leadership for Effective Emergency Management," *Public Administration Review* (2006): 131, 135.

secondary data analysis. The secondary data collection consists of academic research, plans, and after-action reports focusing on collaboration and leadership, government response to major and catastrophic disasters, predicting effectiveness, and the design and sustainment of response networks. The data analysis for this thesis focuses on the following.

- Roles and responsibilities of government agencies that focuses on federal and local agencies in particular
    - Roles and responsibilities of those in leadership positions
- Similarities and differences among disaster response operations
- Interaction between governmental organizations
- Successes and failures from responses
    - Techniques that proved to be most beneficial to the affected community
    - Noticeable differences between responses with greater cohesion and collaboration between federal and local entities

1. Previous Programmatic and Policy Changes

This research focuses on the core theme of linear versus nonlinear response models. The linear model is the current tiered system. The model is described as linear because of its sequential progression. Nonlinear approaches allow for adaptation and deviation from the standard model and do not necessarily build sequentially or in a straight line. Many factors contribute to the success of these two approaches. The review of secondary data collection explores factors that directly or tangentially relate to disaster response, such as the role of community-based organizations, the relationship between politics and disasters, and command and control.

Primary data was gathered in a two-fold manner. The first phase of the data collection consisted of qualitative interviews conducted with subject matter experts in the field of emergency management. This collection consists of 15 qualitative questions that focus on a range of topics, including collaboration, intergovernmental cooperation, roles and responsibilities, inclusion of community-based organizations, the process of gathering information about affected jurisdictions, opportunities for improvement, and

best practices. The qualitative interviews specifically focus on emergency management professionals from larger metropolitan areas, FEMA regional offices, and FEMA headquarters. This research does not intend to draw comparisons between urban and rural environments. The focus on metropolitan areas is due to the likelihood that large cities generally have more resources available for response and recovery that would welcome a more adaptive, nonlinear approach. Future research in this topic could explore the merits of a nonlinear system in rural communities.

The second portion of the primary data collection is participant observation. Participant observation consists of experiences in Philadelphia, Pennsylvania in response to Hurricane Irene and Tropical Storm Lee in August and September 2011, and Hurricane Sandy in October 2012. These examples illustrate some of the challenges that accompany disasters in large cities. This form of research is designed to provide qualitative evidence, but represents just one jurisdiction and is not indicative or telling of other disasters.

This research experienced limitations. Future research in this area should expand the primary data collection and seek to diversify the types of participants. One evident omission is the lack of incorporation of state agencies. In the current tiered model, states are a central conduit between federal and local entities. Further research on this topic should incorporate participants across the spectrum of governmental agencies, which should also include participants from various sized communities, and not just major metropolitan areas. Additionally, as private sector and nongovernmental organizations play a greater role in disaster response, future research should be inclusive of these "non-traditional" response entities to justify the value of a structured system or support the transition to a more dynamic model. Finally, this research could be strengthened by incorporating examples or models from other fields. Research that draws parallels from other disciplines provides valuable perspective. For example, private corporations or other governmental organizations that have embraced a systems model to improve collaborative partnerships can highlight the specific benefits and challenges of various organizational structures.

D. SIGNIFICANCE OF THE RESEARCH

This thesis has several purposes. First, as illustrated earlier, the ways in which the United States and various governmental organizations collectively respond to disasters has been routinely criticized. Sometimes this criticism is warranted and constructive. Constructive critique can help organizations improve their operations and better fulfill their respective missions. In fact, constructive criticism, through the development of after action reviews, has become a routine practice in emergency management. The second purpose of this thesis is to reframe the understanding of disasters. However, more than simply reframing and describing, this research creates a framework for serious dialogue about the deeper appreciation of the complexities and hardships of disaster response. This thesis does not address all elements of disaster management concepts, but readers should understand core themes, players, roles and responsibilities, and ways in which organizations can effectively collaborate. The final objective focuses on the benefits and challenges of linear and nonlinear disaster response models, and explores whether an adaptive, systems approach to disasters has merit.

E. CHAPTER OVERVIEW

Chapter II, Literature Review, provides background information about the disaster response system and identifies the various themes that relate to or influence response including citizen involvement, contributions made by voluntary organizations, and the role of politics. Chapter III, Systems Thinking, explores disaster response as a system for managing complex events and explores the merits and limitations of an adaptive approach. Chapter IV, Analysis, summarizes the primary data collection component of this research and identifies core themes and similarities and differences between local, regional, and federal (headquarters') beliefs about disaster response, and provides a series of recommendations developed from qualitative data collection and supported by secondary data. The recommendations are then nominally scored based on five categories for acceptability. In addition to summarizing the salient points from the research, the

thesis concludes with ideas for future research opportunities. These ideas were gathered from primary and secondary data collection and range from a recommitment to current concepts to new and potentially transformative approaches.

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II. LITERATURE REVIEW

A. INTRODUCTION

This literature review serves as a primer for understanding disaster response and the numerous factors in play during emergencies. This list of influential factors is not exhaustive, but focuses on reoccurring themes in literature. Such factors include but are not limited to collaboration, role of community-based and nonprofit organizations, and the role of politics in both the disaster declaration and response processes. Additionally, this literature review identifies areas of consensus and debate, theories relating to emergency management, and limitations in the literature.

B. BRIEF HISTORY OF DISASTER RESPONSE

Emergency management has existed since the Civil Defense era. Given that this thesis explores current emergency management concepts, the history as described in this thesis begins with the creation of FEMA as the federal coordinating agency for emergency management. FEMA was created by Executive Order in 1979. Similarly to the later creation of the Department of Homeland Security (DHS) following the 9/11 terrorist attacks, FEMA's creation meant a consolidation and alignment of related functions within a central agency. It is important to note that the creation of FEMA was not in response to one particular incident, but rather to a growing frequency of major disasters and systemic challenges surrounding government coordination. Throughout history, numerous federal agencies were tasked with pieces of disaster response and the provision of assistance. Although attempts were made to define and expand the federal government's role in emergency management, perpetual issues occurred with coordination stemming from the absence of a single federal entity responsible for coordinating disaster response.[9]

[9] Department of Homeland Security, FEMA, "The Federal Emergency Management Agency Publication 1," 6, November 2010, http://www.fema.gov/pdf/about/pub1.pdf.

Even following the formal creation of a single coordinating entity, specific disasters have challenged FEMA and have required the rethinking and rescoping of missions and objectives. Specifically, terrorism incidents and international emergencies pose fundamental questions about FEMA's role in managing these types of emergencies. U.S. history has definitely experienced its fair share of disasters. Examples of some of FEMA's more historic responses include Love Canal in 1980, the Cuban Refugee Crisis in 1980, the Cerro Grande fire between 2000 and 2004, Hurricane Andrews in 1992, the Space Shuttle Columbia Disaster in 1993, Bam, the Iran Earthquake in 2003, Hurricane Katrina in 2005, and the earthquake in Haiti in 2010.[10] Additionally, FEMA was involved in the response to the bombing at the Alfred P. Murrah Building in 2003 (commonly known as the Oklahoma City Bombing) and the response to the World Trade Center, Pentagon, and Shanksville, Pennsylvania on September 11, 2001. In addition to the infamous catastrophic disasters, FEMA is involved regularly in local incidents by providing emergency support and financial assistance.

Profound diversity exists in the type of incidents in which FEMA engages. In some regards, the diversity in type and magnitude of incidents is creating an environment bound for failure. Emergency management has become a landing pad for complex problems that has led to a departure of focus on core mission capabilities. In addition to the increasing variety and expansion of operating space, numerous factors influence disaster response, both good and bad. Naim Kapucu's research, "Planning for Disasters and Responding to Catastrophes: Error of the Third Type in Disaster Policy and Planning," petitions for networked environments to support the complexity of disaster response. Kapucu argues that the public has high expectations about the processes for managing disasters that can only be met by bottom-up community capacity building.

[10] Department of Homeland Security, FEMA, "The Federal Emergency Management Agency Publication 1," 13–14.

> The response to catastrophic disasters provides clear evidence of the different standards expected of the public sector in the 21st century—no matter whether those standards were actually achieved in that event or not. Just as Hurricane Andrew closed a chapter and the century in the history of catastrophic events in the US with the public's demand for radically better public sector performance, the 9/11 disaster inaugurates expectations of new, substantially higher standards while simultaneously exemplifying the incredible complexity of successfully managing the panoply of catastrophic disasters in the future.[11]

The response to major disasters has been largely reactive. Disasters have provided the impetus for the creation of new agencies, new frameworks, and policy changes. While these changes are seen as challenging, perhaps even disorganized, the willingness to be adaptive is promising and demonstrates the pursuit of program efficiency and effectiveness. It also demonstrates that change can also result from public demands and lobbying. Kapucu's writing demonstrates that despite previous failures, the public expects more and more in the aftermath of disasters. The status quo is not tolerated.

This formative approach is exemplified by the recent changes in national disaster response doctrine. Throughout FEMA's history, the organization has developed lengthy and verbose response guidance documents that provide a roadmap for coordination. What started as the Federal Response Plan (FRP), later transitioned to the National Response Plan (NRP). This represented a shift away from a federally heavy response to a system inclusive of agencies and organizations from across the nation, including other governments. Response doctrine changed again and became the National Response Framework (NRF). The NRF focuses on process and structure, but allows for flexibility within Emergency Support Functions (ESF). It is worth noting that the concept of ESF was part of the NRP as well. While seemingly insignificant, this shift to the NRF is symbolic in that it acknowledges that one single plan may very well be woefully inadequate and the guidance provided in the NRF fosters and encourages just-in-time planning and strategizing. The final and most recent evolution in response doctrine resulted in the development of the National Disaster Recovery Framework (NDRF),

[11] Naim Kapucu, "Planning for Disasters and Responding to Catastrophes: Error of the Third Type in Disaster Policy and Planning," *International Journal of Public Policy* 3, nos. 5/6 (2008): 314.

which is an even greater metamorphosis of FEMA's perception of its role in disaster response, which recognizes and emphasizes the role of state and local government in disaster response and FEMA's role in and focus on disaster recovery. FEMA's newest slogan "not the team, but part of the team," is exhibited in the policy shifts that have occurred during the past several years.[12]

C. CATEGORIZATION OF LITERATURE

Numerous sub-topics in which to categorize literature about the national disaster response model exist. For the purposes of this thesis, important categories include organizational structure and leadership, the role of community-based organizations, and the role of politics in disaster relief operations. While this thesis focuses primarily on disaster response operations, extensive research and opportunity to explore how well various models works for prevention and preparation and long-term recovery exists as well. While all disasters provide opportunity for evaluation of practice, more historic disasters—generally those that have been more costly, have led to greater loss of life, and received significant media attention—have elicited transformative cultural shift. Hurricane Katrina was one of these defining events and the research pertaining to the challenges in the Gulf Coast is extensive.

1. Organizational Structure and Leadership

The field and profession of emergency management have been evolving into a more collaborative enterprise since the 1940s and 1950s.[13] The organizational structure of FEMA is indicative of a shift towards a collaborative venture. Like many federal agencies, FEMA is organized around geographic regions and embodies a hybrid model consisting of centralized headquarters and operational regional offices. Concerted efforts have been made to decentralize FEMA operations further by empowering regional offices. FEMA Administrator, Craig Fugate, strongly believes that emergency

[12] Department of Homeland Security, FEMA, "About the Agency," (n.d.), http://www.fema.gov/about.

[13] Waugh and Streib, "Collaboration and Leadership for Effective Emergency Management," 131.

management organizations are most responsive and effective when the unambiguous authority to make necessary operational decisions is delegated to the lowest command levels possible and he has delegated several authorities to regional offices so they are better equipped to work with state and local governments.[14] This division and decentralized structure provides a platform for collaboration with state and local entities. The shift away from a top-down bureaucratic model to a more dynamic and flexible system facilitates multiorganizational, intergovernmental, and intersectoral cooperation.[15] Specifically with disaster planning, a geographic-based approach enables agencies to focus on pertinent and realistic scenarios, rather than preparing for generalized and unspecific threats.

However, during disasters, FEMA is often forced into discarding the decentralized model to ensure that a sufficient number of disaster reservists are available to support the response. The result is an onslaught of personnel unfamiliar with the landscape. When Hurricane Irene arrived in Philadelphia in the fall of 2011, disaster reservists responded who knew very little about the Philadelphia community and were unfamiliar with local responders, elected officials, and the characteristics of the community and landscape.[16] The steep learning curve that accompanies this approach creates a disjointed response that may not best support the involved communities. However, research will later suggest that external responders—those not living in the disaster area—add value because they can focus on their assigned missions and are less preoccupied by simultaneously worrying about their families and loved ones. As described by one participant during the interview portion of the data collection, the deployment of disaster reservists and Federal Coordinating Officers (FCO) from other

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[14] U.S. House, *Ensuring Strong FEMA Regional Offices: An Examination of Resources and Responsibilities, Statement of David Garret and Tony Russell before The Committee on Homeland Security, Subcommittee on Emergency Preparedness, Communications and Response*, 111th Cong., 2nd sess., March 16, 2010, 2.

[15] Waugh and Streib, "Collaboration and Leadership for Effective Emergency Management," 131.

[16] Samantha Phillips, City of Philadelphia, Office of Emergency Management, participant observation, September 23, 2011.

regions may be the business model FEMA chooses to use as a means of eliminating the complications that arise from personalities and good or bad long-standing relationships.[17]

Organizational structure is not a benign issue and can actually impact the utility of disaster response. Historically, disaster response operations have often been quite centralized and provide little room for creativity. The top-down, centralized response to Hurricane Katrina afforded little room for flexibility and did not accommodate the complexities of the disaster. The assumption that one agency could manage a disaster of that magnitude was unrealistic.[18] Evidence suggests systemic challenges with organizational structure and design in several nationally significant responses. For example, in 2009 DHS, Office of Inspector General (OIG) reviewed FEMA's response to Hurricane Ike. While that assessment was largely favorable, at times, FEMA departed from doctrinal guidance within the NRF; a structure that focuses on engaged partnerships, tiered response, adaptability, unified command, and readiness to act.[19] As cited by OIG, a need exists to clarify the authority of local and regional emergency managers to make operational decisions.[20] Doing so will ensure that resources provided match unmet needs and streamline response operations. While criticized by OIG, the departure from the NRF should not necessarily been viewed as problematic. Response plans can rarely be executed as expected and often require flexible approaches and improvisation to deal with an uncertain and changing environment.[21]

Weaknesses in the newly formed DHS became apparent during the interagency fiascoes of Hurricane Katrina that impacted nearly one and a half million people in

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[17] William Wheeler, phone interview with the author, Harris County, September 25, 2012.

[18] Waugh and Streib, "Collaboration and Leadership for Effective Emergency Management," 134.

[19] Department of Homeland Security Office of Inspector General, "Management Advisory Report: FEMA's Response to Hurricane Ike," (OIG-09-78), (Washington, DC: U.S. Department of Homeland Security, June 2009), 2.

[20] Ibid.

[21] David Mendonca et al. "Decision Support for Improvisation During Emergency Response Operations," *International Journal of Emergency Management* 1, no. 1 (2001): 31.

Louisiana, Mississippi, and Alabama.[22] The failures of local, state, and federal agencies' capacities to collaborate revealed acute weaknesses in preparation, alarming failures in translating preparation into action, and the inability to improvise in the face of life-threatening events.[23] The mismanaged response to Hurricane Katrina, an effort plagued by slow response and inefficient use of resources, provides opportunity to explore disaster response strategies to find efficiencies and opportunities.

2. Role of Community-Based Organizations

Research also finds challenges with a centralized disaster response approach because it can be less inclusive and not capitalize on the availability of resources coming from private industry and community-based organizations (CBO). Locally based recovery efforts have added benefits because they engage the local community and provide job opportunities.[24] In the case of Hurricane Katrina, the utilization of resources readily available through major private corporations was significantly limited by the need for processes to be channeled through FEMA. In addition to response operations being enhanced by a collaborative, decentralized system, recovery efforts that evolve based on action on the ground produce faster, more robust, and more sustainable redevelopment than efforts stemming from politically produced and centrally executed plans.[25]

FEMA's current focus on whole community is a method for capitalizing of community self-organizing. This decentralized approach to disaster management acknowledges the limitations of governments, recognizes the strength in community-based concepts, and empowers communities to assume responsibility during disasters. FEMA's approach is not novel. Following Hurricane Katrina, noble community

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[22] Susan Page Hocevar, Gail Fann Thomas, and Erik Jansen, "Building Collaborative Capacity: An Innovative Strategy for Homeland Security Preparedness," in Advances in Interdisciplinary Studies of Work Teams: Innovation Through Collaboration, ed. Michael M. Beyerlein, Susan T. Beyerlein, and D. A. Kennedy (Oxford: Elsevier JAI Press, 2006), 3.

[23] Ibid.

[24] Chester Hartman and Gregory D. Squires, *There Is No Such Thing as a Natural Disaster* (New York, NY: Routledge, 2006).

[25] Peter Boettke et al., "The Political, Economic, and Social Aspects of Katrina," *Southern Economic Journal* 74, no. 2 (2007): 371.

organizing efforts were undertaken by groups, such as the Association of Community Organizations for Reform Now (ACORN), People Improving Communities through Organizing (PICO), and the Industrial Areas Foundation (IAF), to support the reconstruction of Crescent City.[26]

Several disciplines are thinking about ways to best capitalize on the infrastructure that exists within communities. The "whole of society" concept outlined by Stavridis and Farkas in "The 21st Century Force Multiplier: Public-Private Collaboration" calls for a shift away from the "whole of government" approach to a more inclusive strategy that recognizes government limitations and makes better use of limited public and private resources.[27] Social connections play an integral role in community resiliency. Political scientist Daniel Aldrich lobbies for people to become more involved in their communities as a disaster preparedness measure and has demonstrated that following Hurricane Katrina, the Japanese earthquake, and the tsunami in Southeast Asia, the strongest communities fared better.[28] In the 11 years since the terrorist attacks on September 11th, the public has shown an interest in being involved and will self-organize to solve problems.

3. Citizen Response

Many lay persons, and unfortunately some emergency managers, appear to believe that people respond to disasters in socially disorganized and even personally disoriented manners.[29] A misconception exists that social breakdown, not community resilience, ensues following a disaster. This misconception may have led to the desire for a command and control model to counter the sporadic and unpredictable behavior of the

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[26] Wade Rathke and Beulah Laboistrie, "The Role of Local Organizing; House-to-House with Boots on the Ground," in *There is No Such Things as a Natural Disaster*, ed. Chester Hartman and Gregory D. Squires (New York, NY: Routledge, 2006), 255–259.

[27] James Stavridis and Evelyn N. Farkas, "The 21st Century Force Multiplier: Public-Private Collaboration," *The Washington Quarterly*, Spring 2012.

[28] Daniel Aldrich, "The Key to Disaster Survival? Friends and Neighbors," with Shankar Vedantam. National Public Radio, July 4, 2011.

[29] Ronald W. Perry and Michael K. Lindell, "Understanding Citizen Response to Disasters with Implications for Terrorism," *Journal of Contingencies and Crisis Management* 11, no. 2 (2003): 49.

public. Conversely, researchers have found that in the immediate aftermath of disasters, community resilience and unity, strengthening of social ties, self-help, heightened initiative, altruism, and pro-social behavior more often prevail.[30] Prolific examples of aid provided by citizens and the benefits of leveraging the citizen response abound. Following Hurricane Katrina, more than 14,000 volunteers throughout the nation were actively involved in response and recovery efforts; efforts that varied from actively assisting with the executive of emergency evacuation plans to welcoming and registering evacuees as they arrived at emergency shelter locations.[31]

The assumptions about how the public will behave following a major natural disaster or act of terrorism is unfortunately not limited to the media's role in shaping this belief. Policy makers and planners also appear to have expectations about human response not compatible with known behavior principles and with data on human behavior under emergency conditions.[32] Three common myths are that citizens will panic, they are helpless and dependent, and looting and lawlessness occurs following disasters.[33] While these behaviors occur on occasion, they are not the norm. Having a better understanding and appreciation for citizen reaction can improve the ways in which emergencies are responded to by allowing for the development of more accurate response strategies, including greater resource prioritization. Most citizens respond constructively to environmental threats by seeking information and obtaining resources to help them cope with an incident.[34] This desire for information and seeking of supporting resources can serve as a force multiplier for the comprehensive manner in which communities respond to emergencies.

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[30] Erik Auf der Heide, "Common Misconceptions about Disasters: Panic, the "Disaster Syndrome," and Looting," in *The First 72 Hours: A Community Approach to Disaster Preparedness*, ed. M. O'Leary (Lincoln, NE: iUniverse Publishing, 2004), 341.

[31] Kapucu, "Planning for Disasters and Responding to Catastrophes: Error of the Third Type in Disaster Policy and Planning," 321.

[32] Perry and Lindell, "Understanding Citizen Response to Disasters with Implications for Terrorism," 49.

[33] Ira Helsloot and Arnout Ruitenberg, "Citizen Response to Disasters: As Survey of Literature and Some Practical Implications," *Journal of Contingencies and Crisis Management* 12, no. 3 (2004): 102–103.

[34] Perry and Lindell, "Understanding Citizen Response to Disasters with Implications for Terrorism," 50.

In 2004, The New York Academy of Medicine conducted research entitled, *Redefining Readiness: Terrorism Planning through the Eyes of the Public*. The study focuses on how the American public would respond to two scenarios, a dirty bomb and a smallpox outbreak. While the results on how the public would respond and their level of trust in directions provided by government officials differs, one largely unanimous conclusion was that the public is interested in community-level planning—not just in learning about plans, but being actively involved in the development of plans.[35]

4. Political Culture

The final recurring subcategory speaks to political culture. This culture is the broadest category in that it addresses the political and economic climate within a specific jurisdiction, but also the role of public corruption, the tendency of disaster declarations to be based on political affiliations and election cycles, and the challenges with intergovernmental collaboration. The "government failure" that plagued the response to Hurricane Katrina can be attributed to inertia, corruption, and waste visible at all levels of government.[36] The City of New Orleans and the State of Louisiana have deep-rooted public corruption problems and literature suggests that this corruption contributed to FEMA's delay in response and over cautiousness, one of six problems later highlighted in the public choice theory.[37] Public choice theory is used to explain politically driven decision making that result in outcomes usually in conflict with the preferences of the public.[38]

While the extent to which politics impacts operations is varied throughout the literature, evidence supports the highly politicized nature of disasters. The assumption with Hurricane Katrina is that partisan politics had a significant impact on the operational decisions. Examples of the politicized nature of decisions seen during Hurricane Katrina

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[35] Roz D. Lasker, *Redefining Readiness: Terrorism Planning Through the Eyes of the Public* (New York, NY: The New York Academy of Medicine, 2004), 44.

[36] William F. Shughart II, "Katrinanomics: The Politics and Economics of Disaster Relief," *Public Choice* 127 (2006): 32.

[37] Sobel and Leeson, "Government's Response to Hurricane Katrina: A Public Choice Analysis," 59.

[38] Wikipedia, "Public Choice Theory," (n.d.), http://en.wikipedia.org/wiki/Public_choice_theory.

include the struggle over the federalization of the National Guard between Governor Blanco and President Bush, and the ability of Mississippi Governor Barbour to obtain a large amount of disaster aid despite having lesser damage and unmet needs.[39]

The description of federal aid provided in the aftermath of Hurricane Katrina is quite unfavorable. Research suggests that the involvement of the federal government is "at best superfluous and at worst positively destructive."[40] The literature consistently claims that decisions about federal disaster aid were highly politicized and often not based on actual need, which was supported by evidence that the mean rate of disaster declarations is higher in election years compared to non-election years.[41] While the desire to shift towards a decentralized, regional model focuses on improving response through collaborative networks, a nonlinear model that focuses solely on the needs of communities may subsequently reduce the tendency of disaster aid influenced by politics. Policies that assume the federal government plays the primary role in disaster response are the most susceptible to corruption.[42] Therefore, a shift to a decentralized model with dispersed command and control, one that specifically focuses on local government, could aid in minimizing corruption.

D. AREAS OF CONSENSUS AND DEBATE

The balance between command and control and a more flexible approach to disaster response was mentioned in nearly all the selected literature. Research emphasizes the challenges with the centralized approach during Hurricane Katrina that revealed a national emergency management system in disarray, one incapable of responding

[39] Dale Krane, "The Unavoidable Politics of Disaster Recovery: Hurricane Katrina Offers Lessons on the Interaction of Technical Matters with Decision that Distribute Benefits and Burdens," *The Public Manager* (2007), http://findarticles.com/p/articles/mi_m0HTO/is_3_36/ai_n25014432/.

[40] Art Carden, "Disastrous Anti-Economics and the Economics of Disasters," *Institute of Economic Affairs* (2010): 83.

[41] Molly D. Castelazo and Thomas A. Garrett, "In the Rubble of Disasters, Politicians Find Economic Incentives," *The Regional Economist* (2003): 83.

[42] Boettke et al., "The Political, Economic, and Social Aspects of Katrina," 369.

effectively to the immediate needs of the affected communities and one unprepared to coordinate the massive response and recovery effort.[43]

Another area of debate is the value of community-based organizations in the response and recovery processes. While evidence supports the utilization of CBOs, literature also exists that speaks to the value gained by having strangers—those with no connection to the impacted community—responding to major disasters. Charles Fritz's research in "Disasters Compared in Six American Communities" demonstrates that those who take on initial leadership roles are generally those with no emotional involvement in the disaster.[44] The greater detachment enables these individuals to exercise control over their decisions.[45] This theory is a departure from the notion that local-level leadership and coordination is essential. Other viewpoints encourage local engagement and emphasize the importance of local knowledge. Small variances and infinitesimal changes, in what appear to be insignificant variables, can have an enormous impact on disaster response.[46] These variances may be unrecognizable by responders unfamiliar with the local landscape.

E. THEORIES AND FRAMEWORKS

Public choice theory, based on the principle of self-interest, was commonly referenced throughout the literature. Sobel and Leeson outline six problems that demonstrate public choice theory at work during the response to Hurricane Katrina. These problem areas are characteristics that repeatedly surfaced throughout the literature. The six areas include layered bureaucracy in which too many individuals have control over resources, over-cautiousness in decision making, political manipulation of disaster declarations and relief aid, problems with acquiring timely and accurate information

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[43] Waugh and Streib, "Collaboration and Leadership for Effective Emergency Management," 131.

[44] Charles Fritz, "Disasters Compared in Six American Communities," *Human Organization* 16 (Summer 1957): 9.

[45] Ibid.

[46] Michael J. Bolton and Gregory B. Stolcis, "Overcoming Failure of Imagination in Crisis Management: The Complex Adaptive System," *The Innovation Journal: The Public Sector Innovation Journal* 13, no. 3, art., 4 (2008): 4.

about needs, glory-seeking by government officials, and shortsightedness resulting in biased decision making.[47] While Sobel and Leeson refer specifically to Hurricane Katrina, instances of these factors have occurred in many disaster operations.

"The Hyogo Framework for Action (2005–2015): Building the Resilience of Nations and Communities to Disasters" is another model for the development and sustainment of a collaborative disaster response system. While designed to address disaster risk reduction, the priorities for action can be applied to disaster response strategies and support the need for an interdisciplinary approach to disaster response. The Hyogo Framework focuses on actions that ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation, ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation, use knowledge, innovation and education to build a culture of safety and resilience at all levels, reduce the underlying risk factors, and strengthen disaster preparedness for effective response at all levels.[48]

Several key activities contribute to effective response.[49]

1. Strengthen policy, technical and institutional capacities in regional, national and local disaster management, including those related to technology, training, and human and material resources.
2. Promote and support dialogue, exchange of information and coordination among early warning, disaster risk reduction, disaster response, development, and other relevant agencies and institutions at all levels, with the aim of fostering a holistic approach towards disaster risk reduction.
3. Strengthen, and when necessary, develop coordinated regional approaches, and create or upgrade regional policies, operational mechanisms, plans and communication systems to prepare for and ensure rapid and effective disaster response in situations that exceed national coping capacities.

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[47] Sobel and Leeson, "Government's Response to Hurricane Katrina: A Public Choice Analysis," 56.

[48] The United Nations Office for Disaster Risk Reduction, "Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters," Extract from the Final Report of the World Conference on Disaster Reduction, 6–12.

[49] Ibid., 12–13.

4. Prepare or review and periodically update disaster preparedness and contingency plans and policies at all levels, with a particular focus on the most vulnerable areas and groups.
5. Promote the establishment of emergency funds, where and as appropriate, to support response, recovery and preparedness measures.
6. Develop specific mechanisms to engage the active participation and ownership of relevant stakeholders, including communities.

F. GAPS IN LITERATURE

Literature about this topic is heavily focused on the response to catastrophic disasters, such as Hurricanes Andrew and Katrina, and the 9/11 terrorist attacks. While major disasters emphasize chronic challenges, a more comprehensive look at the national disaster response model is necessary. Literature that highlights response operations during more routine emergencies, not just catastrophic events, may better identify the functions of various responding entities and help build a response framework that could be applied in a variety instances. Case studies from more routine emergencies (e.g., large apartment fires, minor community flooding) can provide a framework for larger crisis response. Local disasters are test beds for community capacity building. Frameworks for responding to local disasters can be expanded upon when major or catastrophic disasters occur.

Furthermore, the process for collecting and cataloging data about disasters is inconsistent. This inconsistency may be because disasters are not intrinsically well-defined phenomena, and are interpreted and recorded in different ways by different actors. Another reason of particular importance is the improvement in the recording of events.[50] As communication methods have become more readily available, extensive reporting occurs, which requires thoughtful and cautious analysis pertaining to causation and interpretation.[51] In this case, these methods do not necessarily represent gaps in literature, but rather limitations in how research is interpreted and categorized.

[50] Basher, "Disaster Impacts: Implications and Policy Responses," 940.

[51] Ibid., 941.

III. SYSTEMS THINKING

Disasters are inherently complex. They are a convergence of agencies, jurisdictions, laws, policies, and problems. Poul Anderson's quote, "I have yet to see any problem, however complicated, which, when looked at in the right way did not become still more complicated," is fitting in describing disasters and the impact on communities.[52] Disasters are complicated problems only made more complex as the layers are peeled back and the intricacies are further discovered. The success of the response to any particular disaster can be attributed to the network in place to manage the complexity appropriately.

A pair of social scientists coined the term "wicked problem" in 1973. Horst Ritel and Melvin Webber describe wicked problems as messy, ill-defined, more complex than originally thought, and open to multiple interpretations.[53] Wickedness is not descriptive of the degree of difficulty, but rather the ease with which a problem can solved. A wicked problem has innumerable causes, is tough to describe, and generally does not have a singular correct answer.[54] Issues, such as poverty, public education, and terrorism, are described as wicked. Disasters too are wicked problems. They are messy, ill-defined, and always more complex than they originally appear to be. No solution to a wicked problem is ever permanent or wholly satisfying to all stakeholders and is open to interpretation.[55]

A. SYSTEMS APPROACH TO DISASTER RESPONSE

Using a systems thinking approach can help frame the complexities of disasters and assist in the formulation of solutions. As stated by Donella Meadows in her book, *Thinking in Systems*, a system consists of elements, interconnections, and a function or

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[52] Donella Meadows, *Thinking in Systems* (Chelsea Green Publishing, 2008), 11.

[53] Atul Gawande, "Something Wicked This Way Comes," *The New Yorker*, June 28, 2012, http://www.newyorker.com/online/blogs/comment/2012/06/something-wicked-this-way-comes.html#ixzz28zkIZLez.

[54] John C. Camillus, "Strategy As a Wicked Problem," *Harvard Business Review*, May 2008, http://hbr.org/2008/05/strategy-as-a-wicked-problem/ar/1.

[55] Gawande, "Something Wicked This Way Comes."

purpose.[56] Applying these three components to disasters exemplifies the networked and inter-related nature of disaster response. The elements can be represented by the type of disaster, first responders, and involved communities. The interconnections consist of the various governmental agencies, non-profit organizations, and private sector players who may not only be affected by the disaster, but are responsible for managing the emergency. Finally, the function or purpose in the most basic sense is the response, recovery, and mitigation efforts. Functions could be represented by specific objectives, such as evacuating a community, providing shelter and housing, conducting damage assessment, debris management, reconstruction, or the function could be the operation in entirety. Despite criticism of the efficiency and efficacy of response to recent catastrophic disasters, disaster response is still analogous to a system—one that is flexible and adaptive to disasters that range in type, magnitude, and complexity.

Well-functioning systems display resiliency, self-organizations, and have hierarchy, all working together harmoniously; ecosystems, human communities, or a community gearing up to respond to a storm all exhibit these components.[57] Resilience is a measure of a system's ability to survive and persist within a variable environment.[58] Systems thrive on feedback loops and the continual flow of information. A departure from a top-down response model to one that is decentralized could improve both the quality and speed of information exchange. A systemic challenge with command and control organizations is the lack of situational awareness and delays in action.[59] However, the flow of information requires appropriate balance. Larger organizations lose their resilience because the feedback mechanisms must travel through many layers, which can lead to a distortion of information.[60] For example, when Hurricane Katrina occurred in 2005, individuals on the ground had the best knowledge, but were unable to implement

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[56] Meadows, *Thinking in Systems*, 11.

[57] Ibid., 75.

[58] Ibid., 76.

[59] Waugh and Streib, "Collaboration and Leadership for Effective Emergency Management," 136.

[60] Meadows, *Thinking in Systems*, 78.

comprehensive rescue plans because information had to travel through the organization, be processed, strategy needed to be developed, and then finally, action could occur.[61]

The second reason why systems work well is due to their ability to self-organize. Self-organizing is similar to evolution and adapting to one problem or a sequence of problems. Meadows uses the formation of snowflakes, an infant learning to speak, and a community organizing around a particular issue as examples of self-organization.[62] The methods and processes used for managing disasters are self-organizing and adaptive to specific problems. Even local, state, and federal response plans account for self-organizing as many of them outline a series of options, but cannot realistically provide an absolute solution. It is a mistake to assume that a response can be completely scripted or that the types of resources available can be fully catalogued.[63]

The final component to successful systems is hierarchy, which might seem surprising or even contradictory because it is often assumed that networks and systems are generally more decentralized and open, even anti-hierarchical. However, a flexible hierarchy provides needed structure. Hierarchies are brilliant systems inventions, not only because they provide stability and resilience, but they reduce the amount of information any one component needs to manage.[64] Disasters have shown the best and worst of hierarchies. Hierarchies have at times created tremendous delays and have led to overly bureaucratic processes. Nevertheless, the absence of hierarchy could lead to disproportionate and inequitable disaster response and confusion within the response system. Furthermore, shared responsibility and authority occur during disaster response. A flexible hierarchy can support a shared governance model and ensure that consistency and collaboration across agencies exists.

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[61] Ori Brafman and Rod A. Beckstrom, *The Starfish and the Spider* (Penguin Group, Inc., 2006), 39.

[62] Meadows, *Thinking in Systems*, 79.

[63] Waugh and Streib, "Collaboration and Leadership for Effective Emergency Management," 134.

[64] Meadows, *Thinking in Systems*, 83.

> Emergency management capacity is built from the ground up. Neighborhood and community programs have to stand on their own because assistance may not arrive for hours or days. Major incidents are addressed by mutual assistance arrangements among community police, fire, and emergency medical service providers. Prevention is generally a local responsibility as well. Local governments have principal responsibility for adopting and enforcing building codes, building standards, and land-use regulations to mitigate water, wind, seismic, landslide, and other hazards. Local emergency managers are increasingly collaborating with building code, urban planning, and other officials who can help reduce risk. What we now call the new governance process forms the core of our national emergency response. Consensual processes are the rule.[65]

B. IMPROVING DISASTER RESPONSE WITH SYSTEMS THINKING

Planning with Complexity emphasizes the importance of capturing local knowledge, with particular focus on marginalized and vulnerable populations. During disasters, this same subset of populations is disproportionately affected. Despite the challenges that plagued New Orleans following Hurricane Katrina, profound success stories occurred concerning collaborative relationships that blend subject matter experts with community stakeholders. One-size-fits-all approaches do not as easily adapt to the needs of a community. The September 11th attacks and Hurricane Katrina are examples of the extent to which decision makers relied on inflexible, backward-looking approaches to problem solving in the midst of mercurial, life-threatening events of catastrophic proportions.[66] The response to disasters consists of flooding an area with federal resources, sometimes regardless of the need or utility of such tools and supplies. In some regards, the success of the response to a particular disaster has been measured by how quickly an enormous amount of resources can be leveraged, but less about whether those are the right resources. For example, during both Hurricanes Irene and Sandy, National Guard resources were deployed to Philadelphia for what was described to local emergency management as a resource at their disposal. In both instances, the Guard could

[65] Waugh and Streib, "Collaboration and Leadership for Effective Emergency Management," 133.

[66] Bolton and Stolcis, "Overcoming Failure of Imagination in Crisis Management: The Complex Adaptive System," 2.

not be mobilized without the approval of central command and the length of obtaining approval was the routine several hours,[67] which is an example of what appears to be strategic forward deployment, but lacking the necessary policy to make this effective.

A disaster response system that involves local communities, both as responders and as a source of information and intelligence, can direct and guide applicable and timely response efforts and be transformative for damaged communities. In the case of Hurricane Katrina, the use of resources readily available through major private corporations was significantly limited by the need for processes to be channeled through FEMA. Confusion in the wake of Hurricane Katrina delayed the delivery of services, personnel, and other resources to people in need, which exacerbated losses of life, injury, and property damage that led people to view government response efforts as inept.[68] Cooperation is needed along traditionally vertical lines of government (local-state-federal) and horizontal lines as well (neighboring and regional municipalities).[69] Successful hierarchies balance central control with control of subsystems; a balance between central control that drives coordination towards a central goal with autonomy to maintain subsystems, and keep them flourishing and functioning.[70]

C. LIMITATIONS TO SYSTEMS THINKING

An open system (one that interacts with the environment and continually exchanges information[71]) lacks central intelligence, and instead, is spread to the outer layers of the organization.[72] In some ways, decentralized intelligence can be incredibly effective, particularly when intelligence leads to action. However, decentralized decision

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[67] Phillips, participant observation.

[68] Bolton and Stolcis, "Overcoming Failure of Imagination in Crisis Management: The Complex Adaptive System," 2.

[69] Beverly A. Cigler, "The State Role in Emergency Management: Significant Challenges," *Commonwealth: A Journal of Political Science*, 15–7 (May 2009): 84.

[70] Meadows, *Thinking in Systems*, 85.

[71] Wikipedia, "Open System (Systems Theory)," (n.d.), http://en.wikipedia.org/wiki/Open_system_(systems_theory).

[72] Brafman and Beckstrom, *The Starfish and the Spider*, 39–40.

making can lead to inconsistent action if each entity operates individually. In this regard, FEMA's combination of central headquarters and operational regional offices is a good model for a hybrid systems organization.

FEMA is comprised of 10 regional offices. Regional offices report to headquarters, but operate with some autonomy. The role of headquarters is important in providing framework, structure, and establishing procedure and policy. Headquarters also ensures continuity and congruity throughout the regions. Without consistent policy, disaster response programs would vary greatly. The autonomy in the application allows the regions to implement strategies most effective for local jurisdictions, but guidance from headquarters provides parallel action, which is particularly important for neighboring jurisdictions that reside in different FEMA regions. For example, FEMA Regions II (consisting of several states including New Jersey) and III (consisting of several states including Pennsylvania) were both affected by Hurricanes Irene and Sandy. If those regions responded to the disaster so differently, the state and local entities responding would have difficulty providing service, members of the public may be inclined to flee to the jurisdiction providing the most services, and public outcry could be significant, almost pinning jurisdictions against one another. The actions taken by government agencies need to be open and transparent and the public needs reassurance that decisions are being made equitably.

Quick action and strategic use of limited resources are vital during disaster response. The second challenge facing governments seeking an open system is the tendency for collaborative processes to be time and resource intensive.[73] The challenge facing nonlinear, decentralized disaster response networks is quickly executing while seeking consensus across numerous stakeholders. Particularly for an organization, such as FEMA that operates with both centralized and decentralized command, instances may occur when a departure of centralized policy is needed to foster a more organic and

[73] Judith E. Innes and David E. Booher, *Planning with Complexity* (Routledge, January 14, 2010), 213.

precise responses. Instead of top-down procedures of planning the recovery, policy can foster an environment that encourages sustainable recovery clear in what it can provide and support the local society.[74]

[74] Boettke et al., "The Political, Economic, and Social Aspects of Katrina," 371–372.

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IV. ANALYSIS

A. SURVEY DESIGN AND CONDUCT

Qualitative data gathered from emergency management experts is used to evaluate further the current disaster response model, identify best practices and opportunities for improvement, and help shape the discussion regarding ways to establish intergovernmental collaboration. The process for collecting this data included a 15-question qualitative survey conducted in person or by phone. Nine individuals participated in the survey; four participants were from local emergency management agencies, two from FEMA regional offices, and three from FEMA headquarters. Individuals were recruited based on the researcher's professional contacts and cold-calling participants based on current and previous position. Conversations lasted approximately one hour in duration.

B. DATA COLLECTION AND ANALYSIS

For the purposes of the research, the national disaster response system is categorized as the multi-governmental response to presidentially declared disasters. The data collected focuses on six main categories.

1. Intergovernmental collaboration
2. Roles and responsibilities, including command and control
3. Effectiveness of resource deployment
4. Understanding local communities and the nuances of affected areas
5. Transition from response to recovery, and specifically the transition of authority
6. Best practices from disaster response

Within these categories, data is further categorized by source: local perspective, regional perspective, and federal perspective. The local perspective is generated from emergency management leaders in major metropolitan communities. The regional perspective is developed based on comments from FEMA Regional Administrators (Regions III and V).

The federal perspective is based on feedback from FEMA leadership within FEMA headquarters in Washington, DC.

1. Intergovernmental Collaboration

a. Interview Questions

Interview subjects were asked the following questions pertaining to intergovernmental collaboration.

- Based on your professional experience, please describe the intergovernmental collaboration within the current disaster response structure.
    - If you identified that collaboration does not work as optimally as it should, what is this attributable to? Can you provide specific examples demonstrating this?
- Does the current disaster response model align with FEMA's Whole Community concept? Why or why not?
- Does the current model provide opportunities for community based organization and nonprofit integration? Why or why not?

b. Results

Intergovernmental Collaboration			
	Local Perspective	**Regional Perspective**	**Federal Perspective**
Pros	- FEMA counterparts show up early and often. - Issues are resolved quickly, using a business-like model. - Respond well to customary disasters. - FEMA has done a good job developing useful programs and staffing those programs with highly skilled individuals. - FEMA is much more proactive and does not wait for declaration process to begin mobilization. - FEMA has focused on improving coordination and integration with private sector (Ex. Integration of Private Sector with National Response Coordination Center). - Empirical and qualitative data demonstrates a more adaptive and agile organization.	- Intergovernmental collaboration works well. Challenges are more likely attributable to poor perception and understanding of disaster response structure. - Communication, cooperation, and collaboration are touchstone concepts for success.	- Magnanimous efforts made by FEMA during Hurricane Katrina that were overshadowed by media coverage that failed to articulate the collaboration that was occurring. - There was a strong framework in place prior to Hurricane Katrina, but Katrina served as a wake-up call for all federal agencies and led to a thorough review of authorities and the ability to executive on those authorities. - Interagency process is working and continues to be refined. - FEMA's emphasis on Whole Community shifts the paradigm towards inclusiveness. - FEMA has transitioned to being part of the team, not the leader of the team. - The collaborative approach allows organizations to prioritize issues and focus on outstanding needs and complex problems (Ex. integration and coordination with disability community).

Intergovernmental Collaboration			
	Local Perspective	**Regional Perspective**	**Federal Perspective**
Cons	- Intergovernmental collaboration does not work as well as it should. Communication and coordination could be improved and FEMA should establish platforms for improved dialogue. - System continues to be challenged by novel disasters (Ex. H1N1, Fukushima disaster in Japan). There is not enough frequency of experience to adequately respond to novel and catastrophic disasters. - FEMA counterparts tend to rotate out of disaster areas frequently and turnover creates challenges with disaster continuity.	- Disaster response is relationship-based. - Challenges with coordination stem from the absence of mutually agreed upon priorities. - Need for improved capacity at the state and local level.	- Examples in history demonstrate a management of disaster based on media that places the focus on the negatives of the situation and ignores the success stories.

Table 1. Data Collection—Intergovernmental Collaboration

c. Analysis

Concurrence among interview participants showed that intergovernmental collaboration is improving, and generally works well during disaster response, as well as unanimous support that collaboration is critical to managing disasters effectively. Local level participants referenced FEMA's agility and focus on developing applicable programs and ensuring that programs are staffed with the correct number of individuals with the appropriate skill-sets. Participants identified several issues that continue to present challenges, which include the higher turnover rate in federal disaster employees (those deployed to a specific area), the complexity of managing novel or catastrophic disasters, the need to continue to expand on state and local capacity that will support the three-tiered response model, and the challenges in how an emergency is discussed by broadcast media—specifically, the tendency to neglect sharing the positive stories and focus solely on the negative accounts.

d. Recommendations

(1) Greater Focus on Novel and Catastrophic Disasters. Events, such as the terrorist attacks of September 11th and Hurricane Katrina, could foreshadow that more troubling and complex disasters are on the horizon; the worst is yet to come.[75] Research demonstrates that the collective management of routine disasters works well, but novel and catastrophic disasters continue to pose challenges. Recent examples of novel emergencies include H1N1, and the potential impact that the Fukushima Daiichi Nuclear Power Plant failure could have on West Coast communities in the United States. Multiple layers of government had difficulty rallying around a common message and strategy.[76] The normal processes for managing disasters will be insufficient in response to "wicked" problems that offer limited time for analysis and reaction.[77] The framework established for routine emergencies provides a good foundation, but the requirements

[75] Bolton and Stolcis, "Overcoming Failure of Imagination in Crisis Management: The Complex Adaptive System," 2.

[76] Barb Graff, phone interview with the author, Friday, September 28, 2012.

[77] Bolton and Stolcis, "Overcoming Failure of Imagination in Crisis Management: The Complex Adaptive System," 2.

necessary to combat emergencies of catastrophic proportions demands more. Some of the elements that will be required of emergency managers in the face of a catastrophic event include the profound need to adapt and expand capacity quickly, restore communication systems, embrace flexible decision making, and a general dramatic increase in the level of coordination.[78]

(2) Develop and Follow Mutually Agreed Upon Priorities. During major disasters, the state is responsible for setting the objectives. The success of disaster response is related to the initial planning process (Incident Action Planning) and the agreement on objectives and priorities. Inefficient disaster response generally results from confusion about the objectives or limited agreement about priorities.

(3) Improve State and Local Capacity. Successful disaster response requires both precise catastrophic planning and bottom-up capacity building.[79] Limited state and local capacity leads to the over federalization of disaster response. The concept that disasters should be managed at the lowest possible level is lost without sufficient resources to affect change and mitigate consequences. Some of the over-escalation is attributed to media; what some researchers refer to as the CNN Syndrome (all disasters quickly become incidents of national significance).[80] The second major contributor to the rapid intervention of federal support is the expectation that this assistance will arrive quickly following a disaster. An abandonment of the three-tiered approach to disaster response (local-state-federal) in attempt to mobilize resources quickly does occur. Failing to enhance local capacity creates a quandary that perpetuates the continued federalization of smaller-scale disasters and fuels frustration about the federal response to disasters.

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[78] Kapucu, "Planning for Disasters and Responding to Catastrophes: Error of the Third Type in Disaster Policy and Planning," 318.

[79] Ibid., 314.

[80] Gary L. Wamsley and Aaron D. Schroeder, "Escalating in a Quagmire: The Changing Dynamics of the Emergency Management Policy Subsystem," *Public Administration Review* 56, no. 3 (May–June 1996): 236–237.

The second dilemma that exists results from the pursuit of all-hazards preparedness while homeland security grant funding remains focused on terrorism-related prevention, response, and recovery. Recent funding decisions illustrate that all-hazards preparedness takes a backseat to terrorism.[81] Limited and reducing means have inhibited state and local capacity building. Focusing on capacity building, rather than type of incident, will enable states and locals to develop robust tools for disaster response regardless of the origin of the emergency.

2. Roles and Responsibilities

a. Interview Questions

Interview subjects were asked the following questions pertaining to roles and responsibilities and command and control.

- Who is in charge during Presidentially Declared Disasters? What are they in charge of? What activities are they responsible for?
- What should be the primary activities or functions of FEMA Headquarters in disaster response? Are these activities and functions appropriate?
    - Would greater or lesser FEMA Headquarter involvement improve disaster response?
- What should be the primary activities or functions of FEMA Regional Offices in disaster response? Are these activities and functions appropriate?
    - Would greater or lesser FEMA Regional Office involvement improve disaster response?
    - Is there sufficient interaction between Regional Offices and local emergency management agencies during disasters?
- What should be the primary activities or functions of Federal Coordinating Officers (FCO) in disaster response? Are these activities and functions appropriate?
    - Would greater or lesser FEMA FCO involvement improve disaster response?

[81] Naim Kapucu, "Examining the National Response Plan in Response to a Catastrophic Disaster: Hurricane Katrina in 2005," *International Journal of Mass Emergencies and Disasters* 24, no. 2 (August 2006): 273.

    - Is there sufficient interaction between FEMA FCOs and local government leaders during disasters?

- What should be the primary activities or functions of local emergency management agencies in disaster response? Are these activities or functions appropriate?
    - Would greater or lesser local level involvement improve disaster response?
    - Do local agencies have the capacity to fulfill current roles and responsibilities?

b. Results

Roles and Responsibilities			
	Local Perspective	**Regional Perspective**	**Federal Perspective**
Role of FEMA Headquarters	- Maintaining perspective and balance during both times of disasters and during peacetime. - Ensure the federal government is acting like one agency. - Ensure that resources are brought to bear with minimal duplication of effort and redundancy.	- Overall federal support and coordination (largely through NRCC). - Support to Regional Offices. - Policy guidance. - Unity of efforts. - "Rule and tools."	- Policy development and strategic direction. - Focus on the larger mission and vision. - Consistency of service across regions. - Movement of resources to empower Regional Administrators. - "Rules and tools." - Set conditions for success and feed resources to those who need to execute.

Roles and Responsibilities			
	Local Perspective	**Regional Perspective**	**Federal Perspective**
Role of Regional Offices	- Support the empowerment of Regional Offices. - Regional Offices are the "face of FEMA." - Regional Offices are well positioned to have a better understanding of needs and resource gaps due to their relationships with states and locals. - Serve as a feedback loop for FEMA Headquarters. - Regional Offices serve as liaisons, but could provide greater serve to large cities and densely populated areas. - Need for improved coordination. - The deployment of regional employees to other regions lessens the likelihood that there will be familiarity among responders. - The perception is that regions continue to operate under status quo during disasters and should be more mission focused.	- There is far greater latitude and authority delegated to the Regions under the current Administration. - Regions are empowered and are able to be much more involved in disaster response. - Regions can assist with expeditious, forward deployment and have locally managed caches of supplies and resources.	- Regions provide a critical linkage between states and territories and centralized federal government. - Regions provide support to FCOs by working closely with states and locals, particularly with elected leadership within impacted jurisdictions. - Regions are the "implementers" of Headquarters' "rules and tools." - Vitally important in ensuring consistency in policies not only within a particular region, but across regions as well. - Regions provide perspective on policy and can advise on the utility and applicability.

Roles and Responsibilities			
	Local Perspective	**Regional Perspective**	**Federal Perspective**
Role of Federal Coordinating Officer	- Position is designed to gauge the capability of the community and evaluate the level of support. - FCOs need to be more cognizant of big city issues and need to be able to adapt to said nuances. - FCOs should not always think of disaster management in terms of three layers of government. - Important balance between servant leadership (being part of the team) versus command and control.	- FCO serves as a liaison between Regional Administrator, Governor, and State Director. - Lead for intergovernmental coordination and responsible for meeting with local legislators and officials. - Responsible for educating community leaders on available resources, expectations, grant application and reimbursement process. - Ensure disaster survivors are receiving the services they are entitled to.	- Face of FEMA during disasters. - Represent FEMA assistance programs and coordinating those programs across all levels of government. - Support the Incident Action Planning process and assist in the development of mutually agreed upon goals and operational objectives. - Responsible for the allocation and management resources.

Roles and Responsibilities			
	Local Perspective	**Regional Perspective**	**Federal Perspective**
Role of Local Emergency Management Agency	- The capacity at the local level is diminishing, particularly in challenging economic times. - Locals have a responsibility, as well and can support FEMA. - There can be greater inclusion of local leaders in the planning process and in the development and sustainment of region capabilities.	- FEMA's primary customer is the state, but larger jurisdictions should be more involved due to the complexity of urban areas and an opportunity to operate more efficiently. - Local jurisdictions need to serve as a hub for information sharing. They are directly responsible for the gathering information that supports the declaration process. - Locals could assist with streamlining operations by knowing tactical and operational detail such as burn rate of commodities and types of generators needed.	- Responsible for sharing ideas across jurisdictions. - Cannot be viewed as an island, but as an integral member of the team. - Strong and informed leadership, leadership that understands the process, greatly supports the overall system. The ability of local emergency management to educate the local government structure is vital. - There are statutory responsibilities with the states, but nuances with major metropolitan areas that need to be considered. - A good practice is the assignment of division supervisors to work directly with big cities.

Roles and Responsibilities			
	Local Perspective	**Regional Perspective**	**Federal Perspective**
Who is in charge?	- Locals are in charge (City Manager, Mayor). - Locals are responsible for the tactical operations of an emergency. State and federal resources are assistive, but the local level will continue to "own" the problem and solution.	- Governor is in charge and FEMA is responsible for supporting the Governor. - FEMA is a support entity. Support is channeled through the FCO who is responsible for coordination Joint Field Office operations.	- Governor is in charge, but FCO leads operational activities. - People remain in charge of what they were always in charge of. - FEMA is never in charge, but that is a common misconception. - During Hurricane Katrina for example, there was a significant abdication of responsible.

Table 2. Data Collection—Roles and Responsibilities

c. Analysis

In contrast to the affinity that quality intergovernmental collaboration is both occurring and necessary, much greater variation occurs in the interpretation of roles and responsibilities and rather significant disparity exists in identifying lead agencies during disasters. General consensus occurred regarding roles and responsibilities; all responses either directly or loosely capture the essence of the division and labor among local emergency management agencies, FEMA regional offices, and FEMA headquarters. Particularly at the local level, and partially at the regional level, respondents recognized the need to be adaptive to the unique needs of major metropolitan areas. However, the interviews showed that some reluctance to depart significantly from protocol and policy still existed.

An interesting division occurred between local and federal respondents in which local agencies largely believed that they remained in charge, where federal agencies gave responses aligned with response doctrine and the authority granted to states in the U.S. Constitution. In this case, the local agencies appear to be embracing their role in the three-tiered response model and do not want to abdicate responsibility.

d. Recommendations

(1) Improve Understanding of Roles and Responsibilities. One of the most interesting results from the data collection was the variation in response pertaining to roles and responsibilities. While the responses were similar in nature, multiple variations appeared concerning the functions of local emergency management agencies, FEMA regional offices, and FEMA headquarters. Discerning who is in charge during presidentially declared emergencies resulted in a near even split between local and federal (regional offices and headquarters) entities. Local agencies believed that they remained in command during presidentially declared disasters, while FEMA was consistently clear that the governors are in charge. A consistent understanding of roles and responsibilities will help guarantee coordinated response efforts that optimize efficiency.

(2) Identify Opportunities for Flexible and Adaptive Management. The traditional model for disaster response relies on a linear approach to problem solving. The tiered response model is exemplary of the linear structure. Disasters (unfamiliar incidents in particular) may require flexibility and a divergence from a traditional model. During complex events, leaders will need to set aside venerated hierarchical and jurisdictional boundaries and consider horizontal relationships and networks.[82] An example of a nonlinear approach would be a direct partnership between federal and local entities, as warranted by the incident. The coordination that occurred in lower Manhattan between New York City and FEMA was an effective nonlinear model and streamlined decision making. A shift towards a nonlinear approach will allow for nuances of major metropolitan areas to be addressed appropriately during a response. Such nuances include the likelihood of densely populated areas and sophistication of established systems that could compliment and strength the provision of disaster assistance.

3. Effectiveness of Resource Deployment

a. Interview Questions

Interview subjects were asked the following questions pertaining to resource deployment.

- Does the response to Presidentially Declared Disasters, specifically the deployment of federal entities such as federal employees and disaster reservists, meet the needs of the affected communities?
    - If you identified that they system does not work as optimally as it should, why is this? Can you provide specific examples?

[82] Bolton and Stolcis, "Overcoming Failure of Imagination in Crisis Management: The Complex Adaptive System," 3.

b. Results

Effectiveness of Resource Deployment			
	Local Perspective	**Regional Perspective**	**Federal Perspective**
Effectiveness of Federal Resources	- It helps, but local agencies do not rely on federal support. - Local EMAs assume that the earliest deployment of resources is 72 hours post-incident, so there is local preparation occurring. - Perhaps the deployment of federal resources is too soon resulting in a depletion of resources and an inability to manage multiple incidents. - Deployment of Incident Management Teams (IMT) and FCOs is helpful. - Federal support over the past few years as degraded slightly. Greater emphasis is needed on federal assistance in a supportive capacity, not lead/command capacity. - Frequent turnover is challenging.	- Deployment of resources does help, but states and locals need to know what is needed and there needs to be a plan for utilizing these resources. - FEMA can mobilize and deliver resources fairly quickly and how states and locals manage these resources is an important component of the process. - FEMA is always welcome because they bring resources and support, but it is only one option. - Federal support works well in response, but greater emphasis on leveraging non-federal assistance could improve in making families and communities whole. - There should be greater focus on planning for non-Stafford Act disasters (those with limited federal assistance).	- Federal assistance is helpful and in general, the system does work. - The mere presence of federal resources, even initial deployments, gives the perception and reassurance that there is understanding of the magnitude of the severity of the disaster. - FEMA is in the process of expanding the Disaster Reservist cadre which will lessen the number of times individuals are deployed. To account for this, FEMA is budgeting for additional training days and more opportunity to spend time in the Regional Offices.

Table 3. Data Collection—Effectiveness of Resource Deployment

c. Analysis

The deployment of federal entities to disaster scenes is an amalgamation of government agencies. Despite the complexities that might accompany this convergence, responses about the deployment of federal entities were fairly benign, even apathetic. All respondents found federal assistance to be helpful, but consistent acknowledgment occurred that this assistance was only one option among many and by no means a silver bullet. Local agencies stated that they do not rely on federal assistance and are preparing so they can be sufficient for the initial 72 hours. Greater emphasis needs to be placed on capitalizing on non-federal resources during disasters, and particularly focusing on major incidents that do not trigger a Stafford Act declaration.

d. Recommendations

(1) Open Dialogue About Anticipated Unmet Needs. As identified during the interview process, local agencies play an important role in analyzing and managing the use of commodities. The infamous exchange between state and local leaders following Hurricane Andrew (the state Emergency Operations Center was asking for specific unmet needs to which the local Emergency Management Agency replied with "send everything!") anecdotally paints the picture about challenges with not knowing what is needed within locally impacted jurisdictions.[83] Resource management is a key component of disaster response and plans need to identify necessary supplies. Addressing the need for surge capacity requires careful advance assessment of potential needs, allocation of sufficient budgetary resources, detailed logistical planning, and skillful improvisation.[84]

Following Hurricane Katrina, states initiated conversations with FEMA about anticipated unmet needs. South Carolina, for example, admitted to needing

[83] Wamsley and Schroeder, "Escalating in a Quagmire: The Changing Dynamics of the Emergency Management Policy Subsystem," 237.

[84] Arnold M. Howitt and Herman B. "Dutch" Leonard, "Katrina and the Core Challenges of Disaster Response," *The Fletcher Forum of World Affairs* 30, no. 1 (Winter 2006): 218.

outside assistance and detailed the specific functions for which they would need help.[85] The tiered response model is designed for the effective deployment and management of resources, and local agencies (and states) have a responsibility to ensure that requests for assistance are strategic and can be appropriately integrated into response operations. Furthermore, due to the diversity of communities within a single FEMA region, it is unrealistic for FEMA to know the intricacies (commodity burn rate, staging areas, and tactical deployment strategies) of the local communities.

(2) Evaluate Workforce Composition and Development. The findings from the research demonstrate improved interface between federal employees and local emergency management agencies could occur. Respondents enjoyed the relationships that had developed, but noted that individuals they were accustomed to working with were often deployed out of their regions, and thus, reduced the likelihood that they would be working with people with which they had developed relationships. This recommendation focuses on improving the size of the regional offices as a way to develop more robust relationships between local and federal agencies.

As of March 2012, FEMA reported that it had a workforce of over 18,000 employees, of which approximately 26% (just shy of 4,800) are permanent. The remaining 74% are comprised of other employees, including disaster reservists. From fiscal years 2005 through March 2012, FEMA's permanent workforce has increased by approximately 128% (from 2,100 to 4,792) and its disaster-related temporary employees have increased by approximately 146% (from 5,458 to 13,418 employees).[86] Approximately 70% of FEMA's permanent workforce is located at its headquarters and the remaining 30% are assigned to FEMA's 10 regional offices. FEMA disaster response employees also work at temporary disaster response/recovery sites established across the country.[87]

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[85] Wamsley and Schroeder, "Escalating in a Quagmire: The Changing Dynamics of the Emergency Management Policy Subsystem," 292.

[86] U.S. Government Accountability Office, *Disaster Management, Improving the Nation's Response to Catastrophic Disasters*, 11–12.

[87] Ibid., 13–14.

Based on these statistics about the composition of FEMA's workforce, it is recommended that FEMA continue to expand its full-time permanent workforce and continue to increase the number of employees detailed to regional offices. This augmentation would have a two-fold result, the development of an opportunity for expanded partnerships that could be leveraged during disaster response, and secondly, by increasing the capacities of the regions, greater opportunity for federal employees to be involved with planning and capacity building at the state and local level would occur.

(3) Greater Focus on Non-Stafford Act Declarations. The Stafford Act of 1988 gives the federal government the authority to respond to disasters and emergencies to provide assistance to save lives and protect public health, safety, and property.[88] Both local and regional respondents raised the issue of responding to disasters in the absence of a Stafford Act declaration with the acknowledgment that federal assistance will not always be available and continued opportunities and a need to leverage partnerships during these circumstances existed.

4. Understanding Affected Communities

a. Interview Questions

Interview subjects were asked the following questions pertaining to transfer of knowledge and understanding of impacted communities.

- Do federal agencies know what they need to about local communities? For example, did FEMA know the characteristics of New Orleans in order to appropriately respond to the needs of the community? Why or why not?
    - Is there an opportunity to use the knowledge and familiarity of local agencies to improve situational awareness and improve community and cultural competency?

[88] Kapucu, "Examining the National Response Plan in Response to a Catastrophic Disaster: Hurricane Katrina in 2005," 276.

b. Results

Understanding Affected Communities			
	Local Perspective	**Regional Perspective**	**Federal Perspective**
Understanding Local Communities	- While this would help, it is unreasonable to expect the federal government to fully understand the nuances of local jurisdictions. The country is too expansive and diverse for this. - There are initiatives in place that could provide platforms for improved information sharing (Ex. Threat and Hazard, Identification and Risk Assessment (THIRA), FEMA fellowships and exchange programs). - Interface with FEMA is often compliance-based which minimizes the quality and utility of the effort.	- There are areas for better pre-event integration. - Education could further support locals in crafting the story. Disaster declarations are about telling a comprehensive story—beyond the preliminary damage assessment. This information could help FEMA better understand the magnitude of the situation. - An understanding of local government systems and processes could serve as force multipliers for federal assistance. For example, cities with robust social service infrastructure in place could expand the provision of individual assistance efforts. Similarly, robust financial systems could streamline and add sophistication to the Public Assistance (project worksheet) declaration process.	- While the primary interface is between federal and state entities, there may be need to flexibility. For example, when federal employees deploy, they have difficulty understanding what an area looked like pre-disaster. - Information and data about local communities could quickly become outdated so it is unreasonable and burdensome to for FEMA to maintain this. Locals could serve more of an interface for real-time information. - Statutory and mission requirements that create limitations on the federal-local interface.

Table 4. Data Collection—Understanding Communities

c. Analysis

Evidence from previous disasters indicates that gaps in knowledge about local communities have been a hindrance to effective disaster response. While this research focuses on response, local agencies responded to this question more comprehensively and cited examples in planning and preparedness to highlight the limitations of federal-local integration. While expressed criticism was stated, a desire existed to find utility in federal planning and compliance measures and use these processes to expand partnerships and develop multi-governmental strategies, particular regarding threat and hazard analysis.

Agreement was acknowledged that interfaces could be improved to capture the needs and nuances of local communities better. Regional responders, in particular, felt that understanding local communities could serve as a mechanism for extending service provision by finding alignments with social infrastructure or streamlining operations based on the sophistication and finesse of local government systems.

d. Recommendations

(1) Focus on Utility and Quality, Over Compliance-Based Initiatives. Feedback provided by local agencies expressed concern about the extent of local participation in planning initiatives and the increasing emphasis on compliance-based planning, which is a departure from a quality workflow and final product. A recent example is the Threat Hazard Identification Risk Assessment (THIRA) program, which is required for grant purposes. Local agencies support the concept and recognize that this program could be a useful planning tool for appropriately identifying risk at the local, state, and regional level. However, the need for the THIRA to be completed within a short timeframe diminishes the quality and inclusiveness of the process and the applicability of the final product.

(2) Improve Declaration Process Through Expanded Training. Disaster declarations are largely based on quantitative assessments about the extent of

damage. The accompaniment of qualitative data to further support the declaration process is often excluded. The qualitative narrative not only contributes to determining if a declaration is warranted, it describes the landscape pre-disaster that helps responders prioritize recovery efforts. Expanded training will help local governments develop a comprehensive story about the impact of a particular disaster.

5. Transition from Response to Recovery

a. Interview Questions

Interview subjects were asked the following questions pertaining to the transition from response to recovery.

- How well does the transition from response to recovery work? Specifically, does the transition of command from the federal to local level work reasonably well?

b. Results

Transition from Response to Recovery			
	Local Perspective	**Regional Perspective**	**Federal Perspective**
Transition to Recovery	- Transition from response to recovery is evolving and largely dependent on the impact community and resources and capacity available within that community. - Federal assistance is general last in and first out and the transition to recovery is sometimes hurried.	- The transition is sometimes indistinguishable and the two operations blend together. - It is sometimes less about transition from response to recovery, but more a transition from robust federal involvement to much smaller federal involvement. - The length of time that FEMA supports recovery is a difficult policy question because recovery could last for years. The recovery in the Gulf Coast is still ongoing. - The development of the National Disaster Recovery Framework (NDRF), accompanied by the creation of Federal Disaster Recovery Coordinators (FDRC), provides guidance and places greater emphasis on effect recovery. - The establishment of recovery task forces has proven to be supportive of communities and ease the transfer of coordination.	- Transition poses difficulty with balancing maintaining a presence while being prepared for future disasters. - The extent of transition and length of support is dependent on the type of disaster (Ex. floods generally require longer recovery operations), area impacted, professionalism and capacity of the states. - FEMA has learned difficult lessons from pulling out of an area too quickly and then needing to either re-deploy or try to provide support from afar. When the majority of federal resources vacate an area, outstanding issues are directed back to the Regional Offices. Premature departures can overwhelm regional operations. - Recovery should focus on long term efforts and help a community envision what a community will look like in the future (ten years later for example). It can provide an opportunity for communities to be inventive and transformative surrounding systemic issues such as low income housing.

Table 5. Data Collection—Transition from Response to Recovery

c. Analysis

No set rules or benchmarks outlined when the transition from response to recovery (specifically, the departure of federal resources) should occur, which is an amorphous process dependent on the status of the impacted community and availability of local resources that can fill in voids left by the reduction in federal support. In addition to managing the expectations surrounding a particular community, a larger balancing act of being prepared for future disasters with limited resources exists.

Local agencies did not necessarily feel that FEMA's departure was untimely, but did feel that the transition was sometime hurried, which left little time for succession planning. A significant take-away from this section was the need to open dialogue about the status of recovery operations and early discussions about appropriate times to scale down federal support. The newly created position of Federal Disaster Recovery Coordinators (FDRC) should lessen the difficulties with this transition.

d. Recommendations

(1) Develop a Mutually Agreed Upon Exit Strategy. The adage in emergency management is that disasters begin and end at the local level meaning that federal support is a temporary assistance. The decision regarding the cessation of the majority of federal resources is not an exact science, but conceptually occurs when the majority of people impacted have received initial assistance. The transition from response to recovery can be problematic of local jurisdictions. Local agencies—generally much smaller organizations than federal counterparts—simply do not have the depth of personnel to segment response operations from recovery operations. Early conversations about transfer of command and the development of an exit strategy can help local agencies prepare for the departure of federal partners.

(2) Improve Coordination with Local Community During Recovery. FEMA's Whole Community philosophy is working to establish partnerships for improved preparedness, but should be extended to focus on response and recovery as well. During a recent interview, William Carwile, Associate Administrator, Response and

Recovery, referenced a pilot debris management program underway in Louisiana.[89] Private nonprofits are leading debris management efforts, with material and resource support provided by FEMA and United States Army Corps of Engineers (USACE) providing training and quality control, which is an example of ways to include the local fabric within a community. Following Hurricane Katrina, researchers focusing on individual and community engagement following the disaster highlighted that bureaucratic challenges created roadblocks in the delivery of disaster assistance, and in particular for demolition and construction services.[90] The Louisiana pilot project provides opportunities for community engagement, while providing government support and minimizes delays.

6. Best Practices and Areas of Opportunity

a. Interview Questions

Interview subjects were asked the following questions identifying best practices and areas for further research.

- Which disasters do you often refer to as best practices? Which disasters do you think demonstrate challenges, areas needs improving, or failures?
- What three items would improve the disaster response system?

[89] William Carwile, interview with the author, FEMA Headquarters, Washington, DC, September 7, 2012.

[90] John J. Green et al., "The Texture of Local Disaster Response: Service Providers' Views Following Hurricane Katrina," *Southern Rural Sociology* 22, no. 2 (2007): 36.

b. Results

Best Practices and Areas of Opportunity			
	Local Perspective	**Regional Perspective**	**Federal Perspective**
Best Practices	- Best practices identifiable in local disasters. - Deep Water Horizon was a good case study in leadership and collaboration among leadership. - Planned events (Ex. Presidential Inauguration) provide opportunity to partnership development. - Earthquake, tsunami, and nuclear power plant accident in Japan highlighted the likelihood and challenges of cascading incidents.	- The response to the Midwestern floods in Illinois in 2008 was effective due to the use of historic flood data and early engagement with media outlets. - All disasters have levels of failure and there are lessons that can be learned from every opportunity. - It is important to study if cornerstone principles are in place such as coordination and communication.	- The World Trade Center response in New York was a good case study because of the various governments and establishment of disparate command and coordination entities. - Hurricane Katrina is a historic case. It is interesting to observe how quickly agencies needed to identify who was to blame, rather than working towards common solutions. - The 2004 hurricane season and the impact to Florida taught FEMA things about post-disaster housing programs.

Best Practices and Areas of Opportunity			
	Local Perspective	**Regional Perspective**	**Federal Perspective**
Recommendations	- Greater focus on regional training and development of mutual aid partnerships. - Continued focus on private sector in recognition of the importance of getting people back to work and school. - Be direct with the public about expectations and priorities. - Focus on process and refine processes as needed, but refrain from major overhauls. - Improve continuity among federal responders. - Plan and exercise together. - Develop realistic management techniques for catastrophic events.	- Need to develop a comprehensive education strategy on the disaster response process. - Develop recovery solutions for disasters outside the spectrum of presidential disaster declarations. - Develop more efficient Public Assistance strategies, particularly for jurisdictions that have sophisticated financial systems. - Disaster housing is labor intensive and not as supportive as it could be. The process is antiquated.	- Focus on establishing clear understanding of role and responsibilities. - Focus on the development of an exit strategy that ensures all entities are aware of the process and the transitions. - Align mission activities with core capabilities of federal agencies (Ex. Housing and Urban Development should provide greater subject matter expertise on housing programs). FEMA has taken on leadership and coordination roles in areas when there are natural leaders positioned within other agencies. - Revisit statutory responsibilities of federal agencies to optimize federal efforts. - Continue to embrace and refine the 'one team' mentality. - Focus on community resiliency. Able bodied individuals should focus on self-sufficiency which would prioritize resources to needed individuals and communities. - Ensure the optimization of the Joint Field Office concept so that it consists of the right processes, resources, equipment, and personnel.

Table 6. Data Collection—Best Practices and Areas for Opportunity

c. Analysis

The final question of the research survey focused based practices and areas for opportunity. Collecting best practices was intended to support the collection of secondary data, but also to demonstrate the diversity in types of responses. Interestingly enough, few respondents referred to disasters as best practices, but rather spoke about the teachable moments and complexity of the various operations, as if to acknowledge that nothing about a disaster can be labeled as 'best.' MaryAnn E. Tierney, Regional Administrator for Region III, said that in many ways all disasters reveal system failures; it is the degree of failure that changes.[91]

When asked about areas for opportunity, respondents focused both on recommendations related to prior questions during the interview or took advantage of the opportunity to provide new and innovative opportunities. Suggestions focused on expansion and prioritization of regional efforts, such as training and mutual aid relationships, the need to improve community resiliency as a first layer of disaster response, and continued refinement of roles and responsibilities. The novel and particular ideas—those not necessarily directly related to the research—are suggested areas for future research.

d. Recommendations

(1) Continue to Use Planned Events to Develop and Refine Collaborative Processes. While the frequency of disasters is increasing overall, disasters are still uncommon and as a result, insufficient opportunities exist to test disaster response procedures thoroughly. To facilitate timely response, prearranged decision protocols need to be repeatedly rehearsed by people who will be involved in the actual emergency.[92] Planned events provide additional opportunities for developing and refining protocols. Two contrasting examples that support this idea are the differences between the response in New Orleans following Hurricane Katrina and the Pentagon following

[91] MaryAnn E. Tierney, interview with the author, FEMA Region III Offices, Philadelphia, PA, Wednesday, August 1, 2012.

[92] Kapucu, "Examining the National Response Plan in Response to a Catastrophic Disaster: Hurricane Katrina in 2005," 288–289.

9/11. New Orleans Mayor Ray Nagin complained about the lack of collaboration and coordination with federal agencies, but the Pentagon had gone to great lengths to determine who would be in charge during an incident and worked closely with the local municipality (Arlington, Virginia) in formulating plans.[93] When faced with complex problems, officials who have not planned together are challenged by who does what.[94]

(2) Continue to Focus on Private Sector Integration. One of the most consistent findings from the data collection was the value of private sector integration. The availability of the private sector can minimize the likelihood of cascading effects. Expeditious recovery is largely based on how quickly supply chains are restored and private sector is fully operational. Interviewees regarded FEMA's inclusion of private sector within the National Response Coordination Center (NRCC) as an important development and representative of larger collaborative aspirations. FEMA believes so strongly in the aid of private sector integration, it has coined the "Waffle House index," which serves as a damage assessment tool.[95] Waffle House has embraced a disaster-resistant model and strives to keep stores operational, even during major disasters. A closed Waffle House during a disaster is one indicator that FEMA needs to prioritize that particular area. While FEMA's Waffle House index has been modestly satirized, Waffle House's commitment to disaster resiliency proves that the private sector is able to support disaster recovery and understands its roles within a larger context of community restoration.

C. FEASIBILITY OF RECOMMENDATIONS

Central themes emerged through the collection and analysis of primary and secondary data. These themes include the systemic lack of community resiliency, an inability to manage expectations due to a limited comprehensive understanding of the

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[93] Bolton and Stolcis, "Overcoming Failure of Imagination in Crisis Management: The Complex Adaptive System," 10.

[94] Ibid., 9.

[95] The Huffington Post, "The 'Waffle House Index': FEMA Impressed By Chain's Disaster Preparedness," September 1, 2011, Updated November 1, 2012, http://www.huffingtonpost.com/2011/09/01/waffle-house-hurricanes_n_945756.html.

disaster response process and the role of the media in framing disasters, and lastly, the need to recruit, develop, and nurture partnerships with non-traditional stakeholders continually, such as those in the private sector.

The aforementioned recommendations focus on improving these central themes through the lenses of intergovernmental collaboration, understanding roles and responsibilities, effectiveness of resource mobilization, incorporation of local knowledge, transition from response to recovery, and the sustainment of best practices. The recommendations are weighted derived from a nominal scoring system (High=Highly Likely/Positively Perceived, Medium=Somewhat Likely/Neutrally Perceived, Low=Unlikely/Negatively Perceived) based on the likelihood of implementation founded on five categories of limitations: political acceptability, economic plausibility, public perception, effectiveness, and utilization of resources. The discussion portion of this thesis concludes with a list for further research ideas generated from subject matter experts and recurring concepts identified within the literature.

Several of the recommendations require minimal political or economic support to be implemented. Recommendations of this nature generally require sustainment or modest expansion of current initiatives. However, other recommendations will be more challenging to implement due to political acceptability, economic plausibility, public perception, presumed effectiveness, and utilization of resources. Table 7 summarizes the significance of the limitations.

Recommendations		Limitations				
		Political Acceptability	**Economic Plausibility**	**Public Perception**	**Effectiveness**	**Appropriate Utilization of Resources**
		Ranking: High=Highly Likely/Positively Perceived Medium=Somewhat Likely/Neutrally Perceived Low=Unlikely/Negatively Perceived				
Intergovernmental Collaboration	*Focus on novel and catastrophic disasters*	Low	Medium	Low	Medium	High
	Develop mutually agreed upon priorities	High	High	Medium	High	High
	Improve state and local capacity	Low	Low	High	High	Medium
Roles and Responsibilities	*Improve understanding of roles and responsibilities*	High	Medium	High	High	Medium
	Identify opportunities for flexible and adaptive management	Medium	High	Medium	High	High
Effectiveness of Resource Deployment	*Open dialogue about anticipated unmet needs*	Low	High	Medium	High	High
	Evaluate workforce composition and development	Medium	Low	Medium	High	Medium
	Greater focus on non-Stafford Act declarations	High	Medium	High	Medium	Medium

Recommendations		Limitations				
		Political Acceptability	**Economic Plausibility**	**Public Perception**	**Effectiveness**	**Appropriate Utilization of Resources**
		Ranking: High=Highly Likely/Positively Perceived Medium=Somewhat Likely/Neutrally Perceived Low=Unlikely/Negatively Perceived				
Understanding Local Communities	*Focus on utility and quality, rather than compliance-based initiatives*	Low	Medium	Low	High	Medium
	Improve declaration process through expanded training	High	Low	Medium	Medium	Medium
Transition from Response to Recovery	*Develop mutually agreed upon exit strategy*	Medium	Medium	Medium	Medium	High
	Improve coordination with local community during recovery	High	High	High	High	High
Best Practices	*Continue to use planned events to develop and refine collaborative processes*	High	High	Medium	High	Medium
	Continue to focus on private sector integration	High	High	High	High	High

Table 7. Scoring of Recommendations Based on Multifactorial Acceptability

1. Political Acceptability

Political acceptability is defined as the likelihood that elected officials or those in political positions would embrace a particular recommendation, could also be interpreted as likelihood that policy would be adopted.

2. Economic Plausibility

Economic plausibility refers to the possibility of a recommendation being implemented from a financial perspective. High scores mean that a particular recommendation would not require significant economic investments.

3. Public Perception

Public perception refers to the likelihood that members of the public would welcome a recommendation. Public acceptance of a recommendation would be likely if the public could identify the benefits, it is lower cost, would lead to greater safety, or improved outcomes.

4. Effectiveness

Effectiveness is the predicted impacted that a particular recommendation would result in improve disaster response.

5. Utilization of Resources

Utilization of resources relates to the effective and appropriate use of resources. Higher scores in this category mean that a particular recommendation would enable responders to use resources more appropriately during a disaster response.

D. PRIORITY RECOMMENDATIONS

A series of recommendations were put forth as part of this research. While some of the recommendations are less feasible, several would require minimal political or economic support and would be well-received by the public. Six recommendations that should be emphasized not only improve the current tiered disaster response model, but

they also provide opportunities for continuing the migration to a more decentralized, collaborative approach. These recommendations are based on primary data analysis and supported by the literature.

1. Develop mutually agreed up priorities
2. Improve consistent understanding of roles and responsibilities
3. Explore opportunities for flexible and adaptive management
4. Improve coordination with local community during recovery
5. Continue to use planned events as training opportunities
6. Continue to focus on private sector integration

V. CONCLUSION

A. FUTURE RESEARCH

The final question of the primary data collection asked subject matter experts to identify three ideas for future research. Ideas range from a desire to place greater emphasis on issues already in place to new and innovative ideas for improving the response and recovery to disasters.

1. Improve diversity within the emergency management workforce
2. Reconsider interim and long-term disaster housing options. The current disaster-housing program moves individuals in and out of several types of housing, which is disruptive, and delays recovery. The movement of people can increase stress for disaster survivors and for people living in the areas to which they relocate.[96] Identifying opportunities for streamlining this situation could be much more transformative and effective.
3. Invest greater resources into hazard mitigation at the state and federal levels in recognition of the limited capacity at the local level. The development of the built environment has created a quagmire in that it degrades the natural barriers that protect communities.[97]
4. Develop a system for measuring success of Joint Field Office operations, particularly focusing on the utility and organizational integration
5. Revisit statutory authorities and develop policy options for increasing the role of local government during single jurisdiction incidents. In other words, incidents will occur that impact only one geopolitical area within a state, but still rise to the level of a presidential disaster declaration. Statutory authorities should be augmented to allow for direct coordination between local and federal entities.
6. Explore differences in resiliency and response capabilities between urban and rural communities.

B. CONCLUSION

This thesis explores the current disaster response model and evaluates whether an adaptive, nonlinear approach could be of value. In addition to this central theme of

[96] Green et al., "The Texture of Local Disaster Response: Service Providers' Views Following Hurricane Katrina," 30.

[97] Wamsley and Schroeder, "Escalating in a Quagmire: The Changing Dynamics of the Emergency Management Policy Subsystem," 238.

organizational design, this thesis explores roles and responsibilities, evaluates what about the current tiered model works well, and discusses the pros and cons of disaster response strategies by looking specifically at interagency collaboration. As demonstrated in this thesis, disasters are wicked problems. They are a nucleus for complexity and complication and lack an absolute answer, but are rather, a pursuit for the best solution. In addition to being the meeting point for numerous organizations and associated bureaucracy, disasters are defining moments in history. Much can be learned about a community, city, or nation by the way it behaves in a moment of crisis.

As described earlier, a range of confounding variables influence the management of emergencies. It is not surprising that a system pervaded by the volume and magnitude of auxiliary components is at times ineffective. In addition to the enormity of the variables, the dichotomy between war and peacetime—response versus steady state—is challenging. Organizations responsible for responding to emergencies must operate in a continual state of readiness and invest considerable time and energy towards convincing others that it is important to be prepared for something that may occur (unknown when, where, and how).

The pairing of primary and secondary data provided an opportunity to review perceptions included within academic literature, what is believed by practitioners, and what actually occurs. The incorporation of subject matter expertise brings interesting perspectives and a level of reality. It is interesting to see where the academic and practitioner perspectives aligned and differed.

Despite persistent criticism, the consensus among practitioners is that disaster response generally works well. Minor hiccups occur in processes. However, experts in the field do not support the rampant criticism about the system, and the suggestion that the processes for responding to disasters continue to miss the mark. Local emergency management agencies find the current FEMA to be adaptive and flexible, and very willing to work collaboratively with state and local agencies. In a recent interview about FEMA's response to Hurricane Sandy, Administrator Fugate said very simply, "better to be fast than to be late," in response to questions about FEMA's early deployment and

quick mobilization of resources.[98] This response is indicative of the forward-leaning nature of an organization that has adapted to the challenges and criticism of previous emergencies.

The second item of interest is that the process for responding to disasters is quite system like. When asked about various roles and responsibilities of government agencies, some participants noted that FEMA regional offices are a feedback loop for headquarters and provide connectivity between centralized headquarters and what occurs within local communities. Given the multitude of considerations associated with disaster response, it seems that a flexible and adaptive system is not only needed, but components of it already exist. Modern emergency management presents a paradox of both meticulous planning and organization, but simultaneously the need to innovate, adapt, and improvise to ensure that plans fit the circumstances.[99] FEMA's combination of central policy development and decentralized policy implementation embraces the competing and paradoxical principles of compacted and dispersed structures.

The final theme in the research focused on local-level capacity building. Literature emphasizes the insular and provincial nature of disasters. Local agencies are the first to respond and will be working on an incident well after the dissolution of mutual aid, state, and federal resources. State and federal agencies provide support and assistance, but these efforts are not intended to supplant local capabilities. However, as budgets are reduced, local level capacity building is going to become more and more challenging. Continued and greater emphasis on local response capabilities is essential as the frequency and magnitude of disasters is increasing, as are the expectations for successful disaster management.

Disasters are highly inopportune and represent a convergence of complexities, including multiple layers of government, private and non-profit organizations, and diverse populations. This research shows that ongoing efforts are occurring to improve an

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[98] Jennifer Steinhauer and Michael S. Schmidt, "Man Behind FEMA's Makeover Built Philosophy on Preparation," *The New York Times*, November 3, 2012, http://www.nytimes.com/2012/11/04/us/the-man-behind-femas-post-katrina-makeover.html?pagewanted=all.

[99] Waugh and Streib, "Collaboration and Leadership for Effective Emergency Management," 132.

already well-functioning system, a system that will thrive on collaboration and improvisation. Disasters and the fears of disaster generate a strong desire for hierarchy, somebody to take charge, or possibly, someone to be held accountable. Such thinking is inconsistent with the tenets of the field and displays blindness to what collaborative action has accomplished.[100]

[100] Waugh and Streib, "Collaboration and Leadership for Effective Emergency Management," 138.

APPENDIX. INTERVIEW QUESTIONS FOR PRIMARY DATA COLLECTION

Thesis title: Rethinking Disasters: Finding Efficiencies through Collaboration

This survey seeks to examine the relationships and intergovernmental collaboration within the national disaster response system. For the purposes of this research, the national disaster response system is the multi-governmental response to presidentially declared disasters (Ex. Hurricane Katrina, Hurricane Irene, Joplin tornados).

Background Questions:

Organization name: _____

Position title: _____

Length of time in current position (in years): _____

Number of years of service in disaster response/emergency management: _____

Which, if any, presidentially declared disasters have you worked?

What activities or functions did you provide during those disasters?

Interview Questions:

1. Based on your professional experience, please describe the intergovernmental collaboration within the current disaster response structure.
    a. If you identified that collaboration does not work as optimally as it should, what is this attributable to? Can you provide specific examples demonstrating this?

2. Does the response to presidentially declared disasters, specifically the deployment of federal entities, federal employees, and disaster assistance employees, meet the needs of the affected communities?
    a. If you identified that this system does not work as optimally as it should, why is this? Can you provide specific examples?

3. Who is in charge during Presidentially Declared Disasters? What are they in charge of? What activities are they responsible for?

4. What should be the primary activities or functions of FEMA Headquarters in disaster response? Are these activities/functions are appropriate?
    a. Would greater or lesser FEMA HQ involvement improve disaster response?

5. What should be the primary activities or functions of the FEMA Regional Offices in disaster response? Are these activities/functions are appropriate?
    a. Would greater or lesser FEMA Regional Office involvement improve disaster response?
    b. Is there sufficient interaction between FEMA Regional Offices and local emergency management agencies during disasters?

6. What should be the primary activities or functions of Federal Coordinating Officers in disaster response? Are these activities/functions are appropriate?
    a. Would greater or lesser FEMA FCO involvement improve disaster response?
    b. Is there sufficient interaction between FEMA FCO and local government leaders during disasters?

7. What should be the primary activities or functions of local emergency management agencies in disaster response? Are these activities/functions are appropriate?
    a. Would greater or lesser local-level involvement improve disaster response?
    b. Do local agencies have the capacity to fulfill current roles and responsibilities?

8. Are the roles you described previously accurate of what actually occurs during disasters?

9. Do federal agencies know what they need to about local communities? For example, did FEMA know the characteristics of New Orleans in order to appropriately respond to the needs of the community? Why or why not?
    a. Is there an opportunity to use the knowledge and familiarity of local agencies to improve situational awareness and community/cultural competency?

10. What is the ideal balance between federal and local agencies? Does this ideal balance currently exist? If not, what would you recommend to create the appropriate balance?

11. Does the current disaster response model align with FEMA's Whole of Community concept? Why or why not?

12. Does the current model, specifically the involvement of FEMA, provide opportunities for community-based organizations and private non-profit integration? Why or why not?

13. How well does the transition from response to recovery work? Specifically, does the transition of command from the federal to local level work reasonably well?

14. Which disasters do you often refer to as best practices? Which disasters do you think demonstrate challenges, areas needing improvement, or failures?

15. What three items that would improve the national disaster response system? This can include current things that should be enhanced or entirely new ideas.

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LIST OF REFERENCES

Aldrich, "Daniel. The Key to Disaster Survival? Friends and Neighbors." With Shankar Vedantam. National Public Radio, July 4, 2011.

Auf der Heide, Erik. "Common Misconceptions about Disasters: Panic, the "Disaster Syndrome," and Looting." In *The First 72 Hours: A Community Approach to Disaster Preparedness*, edited by M. O'Leary. 341. Lincoln, NE: iUniverse Publishing, 2004.

Basher, Reid. "Disaster Impacts: Implications and Policy Responses." *Social Research* 75, no. 3 (Fall 2008): 937–954.

Boettke, Peter, Emily Chamlee-Wright, Peter Gordon, Sanford Ikeda, Peter T. Leeson, and Russell Sobel. "The Political, Economic, and Social Aspects of Katrina." *Southern Economic Journal* 74, no. 2 (2007): 363–376.

Bolton, Michael J., and Gregory B. Stolcis. "Overcoming Failure of Imagination in Crisis Management: The Complex Adaptive System." *The Innovation Journal: The Public Sector Innovation Journal* 13, no. 3, art., 4 (2008): 1–12.

Brafman, Ori, and Rod A. Beckstrom. *The Starfish and the Spider*. Penguin Group, Inc., 2006.

Camillus, John C. "Strategy As a Wicked Problem." *Harvard Business Review*, May 2008. http://hbr.org/2008/05/strategy-as-a-wicked-problem/ar/1.

Carden, Art. "Disastrous Anti-Economics and the Economics of Disasters." *Institute of Economic Affairs* (2010): 81–84.

Castelazo, Molly D., and Thomas A. Garrett. "In the Rubble of Disasters, Politicians Find Economic Incentives." *The Regional Economist* (2003): 83.

Cigler, Beverly A. "The State Role in Emergency Management: Significant Challenges." *Commonwealth: A Journal of Political Science*, 15–7 (May 2009): 75–87.

Department of Homeland Security Office of Inspector General. "Management Advisory Report: FEMA's Response to Hurricane Ike." (OIG-09-78). Washington, DC: U.S. Department of Homeland Security, June 2009.

Department of Homeland Security. FEMA. "About the Agency." (n.d.). http://www.fema.gov/about.

———. "The Federal Emergency Management Agency Publication 1." November 2010. http://www.fema.gov/pdf/about/pub1.pdf.

Department of Homeland Security. Office of Inspector General. "A Performance Review of FEMA's Disaster Management Activities in Response to Hurricane Katrina." March 2006. www.oig.dhs.gov/assets/mgmt/oig_06-32_mar06.pdf.

Fritz, Charles. "Disasters Compared in Six American Communities." *Human Organization* 16 (Summer 1957): 6–9.

Gawande, Atul. "Something Wicked This Way Comes." *The New Yorker*, June 28, 2012. http://www.newyorker.com/online/blogs/comment/2012/06/something-wicked-this-way-comes.html#ixzz28zkIZLez.

Green, John J., Anna M. Kleiner, and Jolynn P. Montgomery. "The Texture of Local Disaster Response: Service Providers' Views Following Hurricane Katrina." *Southern Rural Sociology* 22, no. 2 (2007): 28–44.

Hartman, Chester, and Gregory D. Squires. *There Is No Such Thing as a Natural Disaster*. New York, NY: Routledge, 2006.

Helsloot, Ira, and Arnout Ruitenberg. "Citizen Response to Disasters: A Survey of Literature and Some Practical Implications." *Journal of Contingencies and Crisis Management* 12, no. 3 (2004): 102–103.

Hennessey, Kathleen. "Obama Vows 'No Red Tape' Will Tour Storm Damage in New Jersey." *Los Angeles Times*, October 30, 2012. http://www.latimes.com/news/politics/la-na-nn-obama-christie-sandy-20121030,0,7118214.story.

Hocevar, Susan Page, Gail Fann Thomas, and Erik Jansen. "Building Collaborative Capacity: An Innovative Strategy for Homeland Security Preparedness." In Advances in Interdisciplinary Studies of Work Teams: Innovation Through Collaboration, edited by Michael M. Beyerlein, Susan T. Beyerlein, and D. A. Kennedy. 3. Oxford: Elsevier JAI Press, 2006.

Howitt, Arnold M., and Herman B. "Dutch" Leonard. "Katrina and the Core Challenges of Disaster Response." *The Fletcher Forum of World Affairs* 30, no. 1 (Winter 2006): 215–221.

The Huffington Post. "The 'Waffle House Index': FEMA Impressed By Chain's Disaster Preparedness." September 1, 2011, Updated November 1, 2012. http://www.huffingtonpost.com/2011/09/01/waffle-house-hurricanes_n_945756.html.

Innes, Judith E., and David E. Booher. *Planning with Complexity*. Routledge, January 14, 2010.

Kapucu, Naim. “Examining the National Response Plan in Response to a Catastrophic Disaster: Hurricane Katrina in 2005.” *International Journal of Mass Emergencies and Disasters* 24, no. 2 (August 2006): 271–299.

———. “Planning for Disasters and Responding to Catastrophes: Error of the Third Type in Disaster Policy and Planning.” *International Journal of Public Policy* 3, nos. 5/6 (2008): 313–327.

Krane, Dale. “The Unavoidable Politics of Disaster Recovery: Hurricane Katrina Offers Lessons on the Interaction of Technical Matters with Decision that Distribute Benefits and Burdens.” *The Public Manager* (2007). http://findarticles.com/p/articles/mi_m0HTO/is_3_36/ai_n25014432/.

Lasker, Roz D. *Redefining Readiness: Terrorism Planning Through the Eyes of the Public*. New York, NY: The New York Academy of Medicine, 2004.

Meadows, Donella. *Thinking in Systems*. Chelsea Green Publishing, 2008.

Mendonca, David, Giampiero E. G. Beroggi, and William A. Wallace. “Decision Support for Improvisation During Emergency Response Operations.” *International Journal of Emergency Management* 1, no. 1 (2001): 30–38.

Perry, Ronald W., and Michael K. Lindell. “Understanding Citizen Response to Disasters with Implications for Terrorism.” *Journal of Contingencies and Crisis Management* 11, no. 2 (2003): 49–60.

Rathke, Wade, and Beulah Laboistrie. “The Role of Local Organizing; House-to-House with Boots on the Ground.” In *There is No Such Things as a Natural Disaster*, edited by Chester Hartman and Gregory D. Squires. 255–259. New York, NY: Routledge, 2006.

Shughart, William F. II. “Katrinanomics: The Politics and Economics of Disaster Relief,” *Public Choice* 127 (2006): 31–53.

Sobel, Russell S., and Peter T. Leeson. “Government’s Response to Hurricane Katrina: A Public Choice Analysis.” *Public Choice* 127 (2006): 55–73.

Stavridis, James, and Evelyn N. Farkas. “The 21st Century Force Multiplier: Public-Private Collaboration.” *The Washington Quarterly*, Spring 2012.

Stein, Alan H., and Gene B. Preuss. “Oral History, Folklore, and Katrina.” In *There Is No Such Thing As a Natural Disaster*, edited by Chester Hartman and Gregory D. Squires. 37. New York, NY: Routledge, 2006.

Steinhauer, Jennifer, and Michael S. Schmidt. “Man Behind FEMA’s Makeover Built Philosophy on Preparation.” *The New York Times*, November 3, 2012. http://www.nytimes.com/2012/11/04/us/the-man-behind-femas-post-katrina-makeover.html?pagewanted=all.

U.S. Government Accountability Office. *Disaster Management, Improving the Nation’s Response to Catastrophic Disasters*. (GAO/RCED-93-186). Washington, DC: GPO, 1993. http://archive.gao.gov/t2pbat5/149631.pdf.

U.S. House. *Ensuring Strong FEMA Regional Offices: An Examination of Resources and Responsibilities, Statement of David Garret and Tony Russell before The Committee on Homeland Security, Subcommittee on Emergency Preparedness, Communications and Response*. 111th Cong., 2nd sess. March 16, 2010.

The United Nations Office for Disaster Risk Reduction. “Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters.” Extract from the Final Report of the World Conference on Disaster Reduction.

Wamsley Gary L., and Aaron D. Schroeder. “Escalating in a Quagmire: The Changing Dynamics of the Emergency Management Policy Subsystem.” *Public Administration Review* 56, no. 3 (May–June 1996): 235–245.

Waugh, William L. Jr., and Gregory Streib. “Collaboration and Leadership for Effective Emergency Management.” *Public Administration Review* (2006): 131–140.

Wikipedia. “Open System (Systems Theory).” (n.d.). http://en.wikipedia.org/wiki/Open_system_(systems_theory).

———. “Public Choice Theory.” (n.d.). http://en.wikipedia.org/wiki/Public_choice_theory.

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